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INDEMNITY AND REACTOR SAFETY

UNIVERSITY OF MICHIGAN
AUG 2 5 1959
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HEARINGS

BEFORE THE

JOINT COMMITTEE ON ATOMIC ENERGY

CONGRESS OF THE UNITED STATES

EIGHTY-SIXTH CONGRESS

FIRST SESSION

ON

INDEMNITY AND REACTOR SAFETY

APRIL 29 AND 30, 1959

Printed for the use of the Joint Committee on Atomic Energy

UNITED STATES
GOVERNMENT PRINTING OFFICE
41488 WASHINGTON : 1959

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INDEMNITY AND REACTOR SAFETY

WEDNESDAY, APRIL 29, 1959

CONGRESS OF THE UNITED STATES
JOINT COMMITTEE ON ATOMIC ENERGY,
Washington, D.C.

The committee met, pursuant to notice, at 2 p.m., room P–63, the Capitol, Representative Carl T. Durham, vice chairman of the Joint Committee, presiding.

Present: Senators Gore and Hickenlooper; Representatives Durham, Aspinall, Hosmer, Van Zandt, Bates, and Price.

Also present: David R. Toll, staff counsel, Joint Committee on Atomic Energy.

Representative DURHAM. The Joint Committee on Atomic Energy is meeting this morning to conduct 2 days of hearings on atomic energy liability and indemnity matters, including the operations of the AEC Advisory Committee on Reactor Safeguards.

These hearings are a followup on the operations of the Price-Anderson Act, Public Law 85–681, enacted by the Congress in 1957 to provide governmental indemnity for reactors constructed in the United States. Last year, the Congress extended this act to cover the operations of the NS *Savannah*, the world's first nuclear-powered merchant ship, now under construction and scheduled for operation in 1960.

The Joint Committee has requested testimony on the operations of the Price-Anderson Act for domestic reactor builders, and also wishes to hear new developments of atomic liability problems abroad, particularly Euratom, and liability problems of nuclear-powered merchant ships.

We have scheduled representatives of the AEC, the Advisory Committee on Reactor Safeguards, the insurance industry, the reactor industry, certain law professors, and other interested persons.

On behalf of the AEC, I understand Mr. Floberg desires to make an opening statement. Please proceed, Mr. Floberg.

STATEMENTS OF JOHN F. FLOBERG, COMMISSIONER; H. L. PRICE, DIRECTOR, DIVISION OF LICENSING AND REGULATION; J. F. HENNESSEY, OFFICE OF GENERAL COUNSEL, ATOMIC ENERGY COMMISSION

Mr. FLOBERG. Mr. Price is our expert witness on this subject. I will be here in case you want to direct any questions to me.

We have prepared a statement and Mr. Price will testify on the first 12 pages of the testimony and this will be followed by Mr. Hennessey testifying on the subject on page 13.

Representative DURHAM. Is this testimony pertaining to the amendments desired by the AEC?

Mr. FLOBERG. Some of this testimony is; yes, sir. After that I understand the staff would like us to skip to page 23 of Mr. Price's statement. So with your indulgence Mr. Price will take up the testimony and present it.

Representative DURHAM. It looks like you have a rather long statement here, Mr. Price. I wish you would reduce this as much as you can to the explanation of the two amendments.

Mr. PRICE. Would you like me to file the testimony and talk to the amendments?

Representative DURHAM. I understand some of the rest of this is going to be presented tomorrow and not all today; is that correct?

Mr. PRICE. That is right.

Representative DURHAM. You may proceed, Mr. Price, in any manner you desire, and this portion of your statement will appear in the record at this point.

(The document referred to follows:)

LICENSEE INDEMNITY

Presented by H. L. Price, Director, Division of Licensing and Regulation

In this testimony we will cover the subjects of indemnity for nuclear incidents, the Advisory Committee on Reactor Safeguards, and hearings in connection with power and testing reactors. My statement covers licensee indemnity and our work with the Advisory Committee on Reactor Safeguards. Other witnesses will deal with the indemnity of Commission contractors, and the maritime and foreign indemnity problems.

I

AEC LICENSEE INDEMNITY

It is now approaching 2 years since enactment of the Price-Anderson Act and there is every reason to believe that the act is in fact proving to be an effective instrument for accomplishing the purposes which Congress had in mind.

In order to make the benefits and protection afforded by the Price-Anderson Act available to the public as quickly as possible, the Atomic Energy Commission issued temporary regulations on September 10, 1957 (10 CFR, pt. 140).

In order to provide effective coverage for public liability claims under the Price-Anderson Act, at least three steps must be accomplished:

(*a*) The Commission must establish the amount of financial protection which licensees must maintain

(*b*) The applicant or licensee must submit proof that such protection has been provided; and

(*c*) There must be an indemnity agreement between the Commission and the applicant or licensee under which Federal indemnity in the amount of $500 million becomes available to satisfy claims for public liability.

The temporary part 140 met these three requirements. Under it, the Commission established a simple formula for determining the amount of financial protection; established procedures respecting proof of financial protection; and provided that indemnity agreements would be entered into with each reactor licensee, such agreements to be effective either on the effective date of part 140 or on the effective date of the license authorizing operation of the particular reactor involved, whichever is later.

The temporary regulation established the amount of financial protection at $150,000 per 1,000 kilowatts of thermal capacity authorized by the license. The Price-Anderson Act requires financial protection equal to the total amount of private liability insurance available (which is $60 million) for all power reactors with a capacity of 100,000 electric kilowatts or more. For purposes of part 140, the relationship between thermal and electrical capacity was assumed to be approximately 4 to 1. It was on this basis that financial protection in

the amount of $150,000 was required for each 1,000 kilowatts of thermal capacity. The regulation also established $250,000 as the minimum amount of financial protection.

Almost immediately after issuance of part 140, problems arose with respect to the ability of agencies of the Federal and State Governments to furnish financial protection. The Commission concluded that it could enter into indemnity agreements with agencies of the Federal Government without requiring such agencies to furnish financial protection; and that in such cases the $500 million indemnity furnished by the Federal Government would be available to cover public liability claims beginning at the first dollar. At the last session of Congress, legislation (Public Law 85–744) was adopted to meet the problem of State agencies. Public Law 85–744 exempts licenses issued to nonprofit educational institutions for the conduct of educational activities from the financial protection requirements of the Price-Anderson Act. Under the amendment the Commission's indemnity obligation of $500 million applies only to public liability in excess of $250,000.

On April 30, 1959, the Commission issued a proposed revision of part 140. The principal changes which would be effected by the revision include—

(*a*) modification of the method for determining the amounts of financial protection required of licensees to take into account population density as well as power level, and to raise the minimum amount required;

(*b*) the requirement of financial protection in the amount of $1 million for holders of construction permits authorized to possess and store special nuclear material at the site of a nuclear reactor for subsequent use as fuel in the operation of the reactor; and

(*c*) procedures for the exemption of Federal agencies and nonprofit educational institutions from the requirement of financial protection.

The proposed amendment would modify the method for determining the amount of financial protection in two major respects:

(*a*) The amendments would specify the amount of financial protection for reactors having thermal power levels of 10 megawatts or less (other than power or testing reactors). These specified amounts would range from one to two and a half million dollars, depending upon the power level.

(*b*) A minimum of $3½ million is specified for all power and testing reactors. Subject to this minimum, amounts of financial protection for reactors in this category would be calculated according to a revised formula designed to take into account the population in a reasonably sized area around the reactor. Under the formula, population would be weighted roughly in proportion to the square of the distance of the population from the reactor site.

Since issuance of part 140, the Commission has tendered a short form interim indemnity agreement to each of its reactor licensees who are required to furnish proof of financial protection. The interim agreement, in essence a form of indemnity binder, provides that it will be superseded by the formal indemnity agreement when the latter is issued in definitive form.

Of the 13 organizations required to furnish financial protection, 12 have furnished nuclear energy liability insurance binders as proof of financial protection and one is relying on its own financial resources to satisfy third party liability claims. The minimum amount of financial protection ($250,000) is required of all but two of these licensees; the exceptions are a licensee (Battelle Memorial Institute) authorized to operate a 3-megawatt research reactor and a licensee (General Electric Co.) authorized to operate a 50-megawatt power reactor, two critical experiment facilities and a test reactor at one location. These two licensees are required to maintain $450,000 and $7,500,000 of financial protection, respectively.

FORM OF INSURANCE POLICIES

Beginning shortly after enactment of Public Law 85–256, extensive discussions were held between representatives of the Atomic Energy Commission and the nuclear energy liability insurance syndicates concerning the draft form of nuclear energy liability insurance policy under consideration by the syndicates.[1] In these discussions attention was focused primarily on drafting and coverage questions in an effort to assure that the policy would accomplish the purposes and meet the requirements of Public Law 85–256.

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[1] The syndicates are the Nuclear Energy Liability Insurance Association (NELIA) and Mutual Atomic Energy Liability Underwriters (MAELU).

On August 28, 1958, a form of liability insurance policy was published by the Commission in the Federal Register for public comment. At the same time the Commission published a proposed form of Government indemnity agreement for public comment. The published policy form represented the most recent draft then available and is the form which has been filed by the insurance industry with the various State insurance agencies. It is also the form which has been incorporated by reference in binders filed by licensees as proof of financial protection.

In September 1958, the syndicates submitted a proposed further revision of the policy forms to the Commission. The principal change which would be effected by this revision is to provide increased coverage in the event of a common occurrence as defined in the policies.

Since the receipt of the revised draft, further discussions have been held with the insurance syndicates and it is anticipated that a number of additional changes may be made in the policy. I will discuss these changes at a later point in my statement.

Licensees subject to the financial protection requirements of section 170 of the act are required to furnish financial protection for public liability arising out of a nuclear incident. Above the amount of financial protection, the Commission furnishes indemnity protection in the amount of $500 million. The financial protection furnished by licensees and the indemnity protection furnished by the Commission should meet as closely as possible in order to avoid any gaps between the two. While to a very substantial extent, this objective has been accomplished, there remain a few problems discussed below.

Gaps might exist if the scope of coverage of financial protection is not as broad as the Commission's indemnity coverage; or if the amount of financial protection maintained is lower than the level at which the Commission's indemnity obligation becomes effective. The situation with respect to gaps is as follows:

a. Transportation.—The insurance policies cover nuclear incidents occurring at a facility or in the course of transportation of source, byproduct or special nuclear material shipped from the facility; but they do not cover transportation to the facility unless the shipment is from a facility owned by the United States. Since the indemnity protection afforded by the Commission includes transportation to a covered facility, regardless of whether the shipment is made from a Government-owned facility, there may be a gap in insurance coverage when a shipment to the facility is made from a privately owned plant. It appears that this gap will be eliminated. The insurance syndicates have advised that they are revising the policies to cover shipments to a covered facility from privately owned plants as well as Government-owned plants.

b. Reinstatement after payment of claims.—The nuclear liability insurance policies offered by the Nuclear Energy Liability Insurance Association and Mutual Atomic Energy Liability Underwriters insurance syndicates contain an aggregate-limit-of-liability provision. The face value of the policies is not automatically reinstated after payment of claims. The syndicates have stated that the aggregate limit of liability is necessary to provide firm limits on the amount of money at risk under any one policy and to avoid situations in which the liabilities of the syndicates might exceed their pool capacities. Because of the absence of an automatic reinstatement provision, payments by the insurer under the policy, in the event of a nuclear incident, would result in a "gap" in the financial protection maintained by the licensee until the insurers reinstate or other appropriate steps are taken. The Commission has, therefore, recommended amendment of section 170 of the act to meet this problem.

c. Common occurrences.—Gaps may also arise because of the "common occurrence" provision in the policies. Under this provision, any occurrence or series of occurrences resulting in injury or damage from the hazardous properties of two different shipments of source, byproduct or special nuclear material—or arising out of the hazardous properties of source, byproduct or special nuclear material discharged over a period of days, weeks, months or longer from two or more nuclear facilities—is deemed to constitute a single nuclear incident. In any such case, the policies provide that the limit of liability of each syndicate under all applicable policies issued by it is the syndicate capacity. As I indicated earlier, their capacities are $46.5 million in the case of NELIA and $13.5 in the case of MAELU.

In any situation where the common occurrence provision is applicable, there may be a gap between the amount of financial protection furnished under the policies and the level at which the Commission's indemnity obligation becomes effective.

Based upon our discussions with representatives of the syndicates, it appears that the phraseology of the common occurrence provision may cover more situations than they intend. As drafted, the provision would seem to apply to any situation where property is damaged or an individual is injured by radio-active effluent from two or more facilities. We understand that, except for causally connected incidents the syndicates intend the provision to apply only with respect to relatively slow "leaks" or gradual effluent from fairly routine operations of two or more reactors; and not to apply with respect to effluent resulting from identifiable reactor incidents. This distinction, however, is not clearly expressed in the common occurrence provision. Modification of the language of this provision may be necessary.

Where there is a causal connection between the damage from one facility or shipment and damage caused by radioactive material from another facility or shipment, the common occurrence provision clearly applies. It appears that the Price-Anderson Act permits the Commission to construe such related occurrences as a single nuclear incident for purposes of indemnity. If the Commission were to do so, there would be no resultant gap between the financial protection and the Commission's $500 million indemnity in these cases.

Two-year limitation on claims.—The proposed form of insurance policy also provides that it applies only to bodily injury or property damage for which written claim is made against the insured not later than 2 years after the end of the policy period. We are concerned that, this "2-year" provision may result in exclusion from coverage of a significant portion of the insured's liability. Such concern has particular significance in connection with radiation injuries because such injuries may not become evident until substantial periods after exposure has occurred. The syndicates have furnished the Commission with a statement of their reasons for including this provision and a copy of that statement was attached to the report we submitted to the Joint Committee on March 31, 1959.

Suspension of policy.—The form of insurance policy also contains a provision authorizing a representative of the insurance companies to suspend the insurance after 12 hours' prior notice to the Atomic Energy Commission, if the insured fails to comply with a request by the representative to correct a condition which appears to be unduly dangerous. We believe that 12 hours' notice to the Commission is too short and would not furnish the Commission with opportunity to take appropriate action. The syndicates have advised that they are preparing a revision of the policies to make the suspension effective at the close of the next normal working day following the day on which notice of intent to suspend the policy is received by the Commission. This proposed revision would also provide for automatic termination of the suspension when the unsafe condition has been corrected. Such a revision should go far to eliminate the principal problems presented by the original twelve hour suspension provision.

FORM OF INDEMNITY AGREEMENT

We have received some public comment on the proposed form of indemnity agreement which was published in the Federal Register on August 28, 1958. The principals matters discussed in these comments, which are not dealt with elsewhere in this statement, include the following:

a. Paragraphs 5 and 6 of Article II of the proposed indemnity agreement set forth the obligations of licensees under section 53e(8) of the Atomic Energy Act of 1954, as amended. Section 53e(8), applicable to special nuclear material licensees, provides that:

> "(8) except to the extent that the indemnification and limitation of liability provisions of section 170 apply, the licensee will hold the United States and the Commission harmless from any damages resulting from the use or possession of special nuclear material by the licensee."

Comments have been received questioning the Commission's proposed conclusion that licensees subject to the financial protection requirements of section 170 remain subject to subsection 53e(8) up to the amount of financial protection.

The comments also suggest a need for clarification of the scope of licensees' obligations under subsection 53e(8). These comments include questions as to whether the subsection covers damage to Government property, Government liability to third persons, or both; and whether the subsection applies to cases where the Government may have been at fault. It should be noted, however, that liability of licensees under subsection 53e(8), whatever its scope, is within the coverage of the syndicates' nuclear energy liability insurance policies.

b. Several suggestions were received that the indemnity agreements and financial protection requirements be effective as of the date fuel elements are transported to the reactor site, if that date precedes issuance of the reactor operating license. These comments are taken care of in the proposed amendment to part 140 issued by the Commission on April —, 1959. This amendment would establish a requirement of financial protection in the amount of $1 million for holders of construction permits authorized to possess and store special nuclear material at the site of a nuclear reactor for subsequent use as fuel in the operation of the nuclear reactor.

c. The suggestion has been made that a bankruptcy and insolvency clause similar to that found in most insurance policies and in the syndicate policies be included in the indemnity agreement. Under such a provision, the bankruptcy or insolvency of a person indemnified would not relieve the Commission or the licensee of its indemnity obligations. The staff is studying the inclusion of such a provision in a revised indemnity agreement.

PROPOSED AMENDMENTS TO THE PRICE-ANDERSON ACT

Onsite property.—On April 8, 1959, the Commission recommended to the Congress two amendments to the Price-Anderson Act. One of these amendments would exclude from Commission indemnity coverage any liability of third parties for damage to property which is located at the site of, and used in connection with, the licensed activity. The definition of "public liability" now contained in the Act seems clearly to require that the Commission's indemnity coverage include indemnity against "any legal liability" arising out of a nuclear incident, including liability of third parties for damage to onsite property. The first sentence of the definition clearly covers any legal liability arising out of a nuclear incident except for claims under Workmen's Compensation Acts of onsite employees, and claims arising out of an act of war. There is no exception for claims by the licensee against third parties for damage to onsite property. In other words, where a third party is legally liable for the nuclear incident and for damage to onsite property, such as the reactor, such person would be indemnified under this sentence against his liability for damage to onsite as well as other property.

The second sentence provides coverage for damage to the property of a person legally liable for the nuclear incident except that person's "property which is located at the site of and used in connection with the activity where the nuclear incident occurs." The exception contained in the second sentence does not appear to apply, however, to claims covered by the first sentence of the definition.

The proposed amendment would add such an exception to the first sentence of the definition. It would exclude coverage of "property which is located at the site of and used in connection with" the licensed activity. The exclusion would not apply to indemnity agreements with Commission contractors.

Coverage of liability for damage to onsite property diminishes the $500 million indemnity protection available to the general public under the Commission's indemnity agreements. There does not appear to have been, nor does it appear likely that there will arise any need for, Government coverage of onsite property. Commercial insurance for such property is available up to $60 million.

Indemnity pending reinstatement of policy amount.—As I have already indicated, the face value of the nuclear energy liability insurance policies is not automatically reinstated after the payment of a claim. Because of the absence of an automatic reinstatement provision, payments by the insurers under the policy might produce a gap, with respect to other nuclear incidents, between the remaining coverage afforded by the policy and the level at which the Commission's indemnity obligation commences. A second proposed amendment recommended by the Commission would authorize the Commission to fill this gap for a reasonable period of time in order to afford the licensee opportunity to furnish financial protection in the required amount. The proposed amendment includes a proposed floor of $1 million below which the Commission would have no obligation.

INDEMNIFICATION OF MATERIALS LICENSEES

The provisions of the Price-Anderson Act are mandatory with respect to licensees, and applicants for licenses, to operate production or utilization facilities. Whether the act should be applied to other Commission licensees, is left to the Commission's discretion. The Commission has not thus far exercised its authority to apply the Price-Anderson Indemnity Act to other licensees.

Following publication on August 28, 1958, of the proposed form of indemnity agreement and the form of nuclear energy liability insurance policies, the Commission received a number of comments suggesting that it extend the Price-Anderson Act to licensees other than reactor owners who possess substantial quantities of special nuclear material. In order that we may have available appropriate technical data upon which to consider this question, the Commission has entered into a contract with the Convair Division of General Dynamics Corp. for a study of criticality hazards. The study is intended to furnish information needed for a decision as to whether or not subsection 170a should be applied to persons licensed under section 53 of the act to use and possess substantial quantities of special nuclear material.

Information which has been furnished to us by the NELIA and MAELU syndicates indicates that private organizations have purchased binders for more than 75 policies of nuclear energy liability insurance for licensed activities not involving nuclear reactors. The amount of insurance purchased under these binders ranges from $250,000 up to $60 million and cover such activities as fuel element fabrication, processing of unirradiated special nuclear material, waste disposal, laundering of clothing contaminated with radioactive material, research and development, as well as other kinds of activities.

In this discussion of activities under the Price-Anderson Act regarding licensees, we have concentrated on problems which have emerged from activities under the Price-Anderson Act to date. We hope the attention devoted to problems has not obscured the fact that indemnity and insurance programs intended by the act are in effect and that solutions have been developed for most of these problems.

Mr. PRICE. All right, sir. I will briefly summarize what is covered here in terms of what we have done in the administration of the act and then go to the amendment, if that is agreeable.

The first part of the statement deals with the problem of the amount of financial protection that licensees are required to show. Under present regulations that amount of financial protection is determined on the basis of the power level of the reactor.

The Commission has recently proposed an amendment to that regulation to modify the amount of financial protection in order to take into account the factor of population density in the surrounding area. We have proposed a modification of the regulation to give effect to the amendments of last summer to the Atomic Energy Act that exempted educational institutions. We also proposed, in view of that change, to raise the minimum amount of financial protection to $1 million.

Representative DURHAM. Is that satisfactory at the present time to the universities throughout the country?

Mr. PRICE. As far as I know, Mr. Chairman, it is. I have heard no problems with respect to the universities since that legislation was passed.

Representative DURHAM. They are able to operate as they feel free to do so?

Mr. PRICE. That is right. They have come in with an adequate showing that they qualify under the amendment and we have issued indemnity binders to all that have done that.

I don't know how many there may be—15 or 20 of them.

In addition, this testimony deals with the problems of the form of indemnity agreement and the form of insurance policies which the Commission published for public comment last fall. There are a good many comments in the record on this subject. I think it is fair to say that most of the important problems—substantive problems—in connection with the form of the insurance policy and the form of the indemnity agreement are pretty well at the point of a satisfactory solution.

There are two problems, though, that we thought might require legislation and we have submitted proposals to the Joint Committee on this subject. These proposed amendments are dealt with beginning at the bottom of page 9 of my prepared statement and with your permission I will read that part of the statement.

Representative DURHAM. I think it would be well to read that.

Mr. PRICE. The first amendment is designed to deal with a problem relating to onsite property.

On April 8, 1959, the Commission recommended to the Congress two amendments to the Price-Anderson Act. One of these amendments would exclude from Commission indemnity coverage any liability of third parties for damage to property which is located at the site of, and used in connection with, the licensed activity.

The definition of "public liability" now contained in the act seems clearly to require that the Commission's indemnity coverage include indemnity against "any legal liability" arising out of a nuclear incident, including liability of third parties for damage to onsite property.

The first sentence of the definition clearly covers any legal liability arising out of a nuclear incident except for claims under workmen's compensation acts of onsite employees and claims arising out of an act of war. There is no exception for claims by the licensee against third parties for damage to onsite property.

In other words, where a third party is legally liable for the nuclear incident and for damage to onsite property, such as the reactor, such person would be indemnified under this sentence against his liability for damage to onsite as well as other property.

The second sentence provides coverage for damage to the property of a person legally liable for the nuclear incident except that person's "property which is located at the site of and used in connection with the activity where the nuclear incident occurs." The exception contained in the second sentence does not appear to apply, however, to claims covered by the first sentence of the definition.

The proposed amendment would add such an exception to the first sentence of the definition. It would exclude coverage of "property which is located at the site of and used in connection with" the licensed activity. The exclusion would not apply to indemnity agreements with Commission contractors.

Coverage of liability for damage to onsite property diminishes the $500 million indemnity protection available to the general public under the Commission's indemnity agreements. There does not appear to have been, nor does it appear likely that there will arise any need for, Government coverage of onsite property. Commercial insurance for such property is available up to $60 million.

Representative DURHAM. Mr. Price, at that point, exactly what does this "onsite" mean? How are you going to define it?

Mr. PRICE. Mr. Chairman, I think the question of what constitutes the site is just a decision that will have to be made as to each case. We will just have to define the boundaries of the site. For a small university-type reactor it might be a relatively small area.

Representative DURHAM. It might include the whole campus?

Mr. PRICE. I would not think so for a small research reactor. Really, those reactors, when they are allowed to be put on campus, are on the basis that they do not constitute a hazard to the part of the campus

where people live. I would see no reason to treat the whole campus as being a part of the site.

On the other hand, in a case like the bigger reactors—and this is not such a big one, but take the several reactors at the GE Vallecitos location—I suspect the site there would be the whole boundary of a pretty substantial acreage.

Representative DURHAM. In cases like the Pittsburgh reactor, which is in operation at the present time, what does onsite mean there? Would it mean the whole county or the whole area?

Mr. PRICE. No. The boundary of the company area where the plant is. That does not happen to be a licensed facility. I am not familiar with how big that site is, but I would think that whatever exclusion area was fenced in, so to speak, by the company for the purpose of that project, would probably be the site that we would be talking about.

Representative DURHAM. I think we better have a pretty clear definition of this onsite matter. You are asking for an amendment which applies to onsite.

Mr. PRICE. This amendment, Mr. Chairman, is really a technical amendment designed to do one thing. The way the law is now written it appears to exclude from the indemnity coverage any reimbursement by the Government under the indemnity agreement for any onsite property, with one exception. That exception is this:

If there is an accident on the site—say the reactor has an accident—and the liability, the person causing the accident, is some third party, like a supplier for example, in that one intance where the fault lay with some third person, somebody other than the reactor owner, the way the law is written it appears to say that we have to indemnify that third party for the damage onsite, including damage to the reactor. We think this was really not intended.

The legislative history seems to say that the committee did not intend to cover any onsite property. But the clear language of the law itself seems to cover onsite property in that one instance.

If the fault, in the case of an accident, were the fault of the reactor owner, the law clearly excludes from the indemnity all onsite property. But if the fault lay with somebody other than the reactor owner—some third party like a supplier—his right to be indemnified does not seem to be excluded with respect to onsite property, including the reactor.

We think that this is probably a loophole that ought to be closed up. One reason is that to the extent that the Government would pay the person liable, it would reduce the amount of the $500 million available to members of the general public that were really intended to be protected.

Secondly, the person owning onsite property, that is, the reactor owner, can protect himself. He can buy property insurance. It is available. We think that onsite property in any event, ought not to be under the indemnity. We think this is in accordance with what Congress had in mind.

Representative DURHAM. Whether or not the responsibility was the owner or not?

Mr. PRICE. Yes, sir.

Representative DURHAM. This is broadening the insurance coverage pretty far, is it not?

Mr. PRICE. No; it is narrowing.

Representative DURHAM. You think——

Mr. PRICE. It is narrowing the indemnity. Let me give an example. Suppose there is a bad accident at a particular reactor and the cause of it was this. Let us take the example that was talked about before, an airplane falls on it.

Let us assume that the fault lies with the airline. As the law is now written, the owner of the reactor could sue the airlines and recover the loss of the reactor.

Representative DURHAM. Under the present law?

Mr. PRICE. Yes, sir; that would be under general law. Under the present Atomic Energy Act, the Commission would have to indemnify the airlines for whatever liability they have to the owner of the reactor.

What we are suggesting is that the obligation of the Commission to indemnify in that case be removed because the reactor owner can cover himself with insurance.

Representative DURHAM. It means, of course, he would have to take out more insurance.

Mr. PRICE. Property insurance. He can also be self-insured.

Representative DURHAM. That is the thing that worries me a little bit. You might have a tremendous amount of property which would be subject to this and the owner of that reactor would have to protect himself by covering all the other property around.

Mr. PRICE. He is protected against any liability that he has to any third parties already. We are not disturbing that.

Representative DURHAM. I know you are not.

Mr. PRICE. We are not recommending any change in that. This is just to remove the obligation of the Commission to pay the third party that might be liable to the reactor owner for loss of the reactor itself, or any other onsite property. There are many ways that all the parties involved can protect themselves.

The owner of the reactor is almost certainly going to carry property insurance covering his loss. Third parties, like suppliers, can buy product liability insurance. We just do not see any reason for the Government indemnity to get into that situation.

(The following correspondence relating to suppliers product liability insurance follows:)

U.S. ATOMIC ENERGY COMMISSION,
Washington 25, D.C., May 29, 1959.

Mr. JAMES T. RAMEY,
Executive Director, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR MR. RAMEY: I enclose a copy of a letter which I have received from Mr. DeRoy C. Thomas, assistant general manager, Nuclear Energy Liability Insurance Association, relating to my testimony on April 29, 1959.

If the record has not already gone to press, you may wish to include a copy of his letter in the print of the hearings.

Sincerely yours,

H. L. PRICE,
Director, Division of Licensing and Regulation.

NUCLEAR ENERGY LIABILITY INSURANCE ASSOCIATION,
New York, N.Y., May 15, 1959.

MR. HAROLD L. PRICE,
Director, Division of Licensing and Regulation,
U.S. Atomic Energy Commission,
Washington 25, D.C.

DEAR MR. PRICE: In reading through the transcript of your testimony on April 29, 1959, before the Joint Committee on Atomic Energy, I noticed that on page 11 you are quoted as saying that suppliers can buy product liability insurance for damage to the reactor. I thought it might be well to bring this to your attention in the event that you might think that the record requires clarificaion on the point.

As you know, both NELIA and MAELU have consistently taken the position that all of their capacity must be made available for bodily injury or property damage suffered by the public. Therefore, neither pool has made capacity available for damage to the reactor itself.

In addition, most product liability policies now carry an exclusion which denies coverage for damage to a reactor where the insured supplies goods or services to such reactor. Consequently, so far as I know, product liability coverage is not available for damage to the reactor.

Of course, as you know, the property insurance pools have recently voted to incorporate in their policies a waiver of subrogation of rights against any party furnishing services, materials, parts or equipment in connection with the planning, construction, maintenance, operation or use of the property covered, arising out of any loss resulting from radioactive material. Such a waiver of subrogation will go a long way toward solving the supplier's problems.

Very truly yours,

DEROY C. THOMAS,
Assistant General Manager.

Mr. PRICE. To the extent that the Government indemnity is in it, it does deplete the $500 million that is otherwise available for the general public's protection.

Representative DURHAM. Has this been discussed with the insurance companies?

Mr. PRICE. I think so. I do not know how recently. We have talked to the insurance companies about all of the problems of interpretation of their policy and our indemnity that we can think of. And certainly, this is one of the things that we would have talked to them about.

Representative HOSMER. Mr. Price, what you propose is to include property which is located at the site of, and used in connection with, a licensed activity?

Mr. PRICE. Yes, sir.

Representative HOSMER. I want to see if we can apply that definition to some circumstance. Let us assume that we have a research reactor at a university located in a building by itself. On the other side of the campus is the university's administration building. The comptroller's office is in there and all of the financial matters respecting this reactor are taken care of in the administration building.

Under this hypothetical proposal, is the administration exempted, or is it still within the operation of the reactor?

Mr. PRICE. This proposal we are talking about wouldn't affect the administration building one way or the other.

Representative HOSMER. Why? Is it not carrying on an activity in connection with the licensed activities?

Mr. PRICE. The problem is to exclude indemnity, depending on whether it is onsite. This does not deal with what constitutes the site. We have the problem of defining the site under the present law as well as under the proposed change.

Representative HOSMER. We are assuming that the administration building is within the area of the site. The question is, is it used in connection with the licensed activity when the books of account of a licensed activity are maintained in the administration building.

Mr. PRICE. No. 1, I do not believe we would consider it onsite in the first place. No. 2, the fact that the books are there, I do not think would cover it.

Representative HOSMER. Let us take one step further. In that same building is a duplicating section which reproduces in some volume, reports on the information that is gained from the operation of the reactor.

Mr. PRICE. The same answer.

Representative HOSMER. Does that take us over into being used in connection?

Mr. PRICE. The same answer.

Representative HOSMER. Will you restate the answer?

Mr. PRICE. I would not, on the basis of this hypothetical situation, regard those activities as being onsite and used in connection with the facility.

Representative HOSMER. We have two circumstances here.

Mr. PRICE. I do not think they are onsite and I do not think they are within what we mean by used in connection with the facility.

Representative HOSMER. What do you mean by site, just the building that houses the reactor itself?

Mr. PRICE. As I said, in the beginning, I think the question of what constitutes the site obviously is a physical boundary question and it will need to be defined in each indemnity agreement that is issued.

Representative HOSMER. I think you are right in that because in each instance before the court is a question of fact. Assuming that the court has disagreed with you and they are defining it within the site. Now we are trying to find out whether it is within the use.

Mr. PRICE. All I can do is express an opinion, that I do not think so. I am wondering if a court would do more than interpret the agreement. If an agreement says that the site is a defined boundary, is the court apt to go beyond that?

Representative HOSMER. That is the reason I am trying to build up a legislative record on this matter so that the court will have something to refer to.

Let us move over into an adjacent building that is primarily a classroom building, but 10 percent of the floor space is utilized in analyzing data that comes out of the reactor. Assuming again that would be judged at the site, what is your opinion as to whether that building is being used or not in connection with the activity?

Mr. PRICE. I think this might have to depend on the location. If, for example, that classroom were in the same building as the reactor——

Representative HOSMER. It is in an adjacent building.

Mr. PRICE. I would think that a classroom building on a campus would be excluded from the site boundary in the policy itself.

Representative HOSMER. But the portion of the building, that 10 percent that is being used to analyze these data, would be included in this proposed amendment.

Mr. PRICE. I do not know. As I understand it, to be considered onsite property it would have to be both on the site and used in connection. So if it is not on the site, it is outside the scope anyway.

Representative HOSMER. We are assuming it is on the site.

Mr. PRICE. You are assuming that it is onsite?

Representative HOSMER. We are assuming that it is a question of fact that the court has decided. What is difficult to me is the determination whether it is being used in connection with a licensed activity. The last immediate question I posed to you was, how about when only a portion of the building, 10 percent, is being used to analyze data? The rest is an unrelated classroom activity. Does this amendment apply to the whole building or does it apply to the 10 percent that is being used to compute the data or would the building be considered as not being used in connection with it.

Mr. PRICE. I think I would have the feeling that the whole building would be outside. It is not being used in connection with the facility in the sense that is meant here.

Representative HOSMER. Supposing you had an adjacent lab building of which less than half of it is being devoted to postradiation analysis of the fuel elements that are in this reactor. Would that building in toto or in part be considered as being used in connection with a licensed activity?

Mr. PRICE. That is getting so close maybe I better ask our lawyer to talk to it. I am afraid that is getting close to the borderline.

Representative HOSMER. Rather than that, I would suggest that since there are sufficient vagaries in the wording that has been suggested, that some kind of memorandum be prepared which can be either adopted or rejected by the committee as its intention with connection with this language.

(The information referred to follows:)

U.S. ATOMIC ENERGY COMMISSION,
July 27, 1959.

HON. CLINTON P. ANDERSON,
Chairman, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR SENATOR ANDERSON: On April 8, 1959, the Atomic Energy Commission submitted to the Congress two proposed amendments to the Atomic Energy Act of 1954. One of the proposals would amend section 11(u) of the act to exclude from the Commission's indemnity coverage any liability of third parties for damage to property which is located at the site of, and used in connection with, indemnified licensed activities (hereinafter referred to as the "onsite property exclusion").

The wording of the onsite property exclusion in the proposed amendment is taken from that presently contained in the second sentence of the definition of "public liability" (sec. 11(u) of the act). The second sentence of the definition reads as follows:

"'Public liability' also includes damage to property of persons indemnified: *Provided*, That such property is covered under the terms of the financial protection required, except property which is *located at the site of and used in connection with the activity where the nuclear incident occurs*." [Emphasis supplied.]

In the course of the hearings on liability and indemnity problems before the Joint Committee on Atomic Energy, Congressman Hosmer requested a memorandum regarding the scope of the underlined phrase as it is used in section 11(u) and the proposed amendment (April 29, 1959; stenographic transcript, p. 16).

As was observed at the hearings by Commission representatives (stenographic transcript, p. 17 et seq.), the determination as to the particular application of

the onsite property exclusion may have to be made in each licensing proceeding in light of the circumstances involved in the particular case. The views set forth in this letter, therefore, represent the present general approach of the staff to the questions considered and do not represent a definitive determination as to the application of the exclusion in any specific case or as to the precise factors which should be taken into account in applying the onsite property exclusion or the relative weight which should be given to such factors. Moreover, such factors and their relative weights may be affected by future rules and regulations of the Commission and by determinations made in particular licensing proceedings.

For property to be excluded from Commission coverage, under the proposed amendment or under the exception in the second sentence of the definition of "public liability" in section 11(u), two criteria must be satisfied. The property must (1) be located at the site of the licensed activity and (2) be used in connection with the licensed activity. Each of these criteria is discussed separately below.

"Located at the site of"

The proposed form of indemnity agreement which the Commission has published for public comment (23 F.R. 6684) provides for the inclusion therein of a description of specific boundaries of the site of the covered facility.

The description of the boundaries of the particular facility site will be determined prior to the execution of the indemnity agreement. The provisions of the agreement will be subject to the Commission's regulatory procedures. We believe that major factors which would need to be considered in determining the boundaries of a particular site include:

1. The required "exclusion area," if any, immediately surrounding the nuclear facility; and
2. The actual physical area (which in some instances might only be a portion of a building) in which the nuclear reactor is housed and in which nuclear fuels used in or produced by the reactor are used or stored.

We think that the boundaries of a particular facility site should not usually be determined by the physical location of incidental activities relating to the reactor operation, which do not involve use or storage of nuclear materials used in or produced by the reactor operations. Thus, the site boundaries would not normally be drawn merely to include areas or enclosures in which accounting activities relating to the reactor operations are conducted or technical reports reproduced.

"Used in connection with"

The "onsite property exclusion" does not exclude all property located at the site of the licensed activity from the indemnity coverage. To be excluded the property must also be "used in connection with" the licensed activity.

As a general rule, buildings and equipment which are utilized for housing or containment of a reactor, or for the storage or handling of radioactive material in order to carry out licensed reactor operations, would be considered as "used in connection with the licensed activity." It may also be that in specific cases additional property would be considered as "used in connection with the licensed activity" because of a close connection with the reactor operations. Because the nature of such property, and the circumstances which would justify including it within the phrase, may vary so widely, we cannot furnish a more specific indication as to when such additional property should be considered as falling within the exception.

Sincerely yours,

A. R. LUEDECKE, *General Manager.*

Mr. PRICE. We will be glad to do this. I think the problem we are now talking about is in the present law as well as in the amendment. The problem of whether it is used in connection with, and is onsite.

Representative HOSMER. Then there is all the more reason for trying to get unscrambled. We hope we never have a case on this, but obviously, if something like this happens it will be the same situation that happens every time. An insurance company will come in and you will have a legal defense confusion there that is pretty long-lasting if we don't make ourselves fairly clear.

Mr. FLOBERG. We can make ourselves as clear as possible. But it seems apparent to me that we will have to add up a sum of items on one side that says that the facility is used in connection with the reactor and a sum of items on the other side that would negate that conclusion.

It is hard in advance to anticipate all the indicia that will appear in every case. We will try to analyze the successive possibilities as you have analyzed them.

I should think it would be very difficult to forecast what the result of any particular litigation would be in this connection.

Representative HOSMER. For my own purposes, I would like to state I do not feel that anything in the nature of supporting activities, such as finance, janitor work, or anything else could be logically interpreted by a court to come under the meaning of being used in connection with the reactor.

Mr. FLOBERG. That would seem right to me because that could be in another campus or another town.

Representative HOSMER. Nor do I feel that the analysis of data coming from the reactor is a related activity. It is a subsequent activity. When we get down to the point of actually analyzing fuel elements the question comes a little bit closer but I do think that is an operation pertaining to the obtaining of initial information after another act has been accomplished, namely, the operation of the reactor, and that would be out.

Nor do I consider any activity that is under the definition and would cause the property to be under the category of "used in connection with" a licensed activity properly under that category unless the building in which it is housed has its major activity, not an incidental activity, in that connection.

Representative DURHAM. That is the point that has worried me somewhat. Are you anticipating an increase in insurance by this change in the act?

Mr. PRICE. No, sir.

Representative DURHAM. I think it would be well, if the Commission could, to submit to the committee statements as to the regulations you are going to use in defining the offsite or whatever the definition is, because that would certainly have a bearing before the court.

We can substantiate that further by writing the intent of the Congress in the report. It is rather fuzzy to me as to what we might get into with this offsite and onsite situation.

You may proceed.

Mr. PRICE. There was one other amendment that we had proposed and this relates to reinstatement of the amount of third liability insurance policy after the principal amount has been depleted by payment of claims.

Under the plan of the insurance companies for the form of insurance policy that has been submitted, the face value of the nuclear energy liability insurance policy is not automatically reinstated after the payment of a claim.

Because of the absence of an automatic reinstatement provision, payments by the insurers under the policy might produce a gap with respect to other nuclear incidents between the remaining coverage

afforded by the policy and the level at which the Commission's indemnity obligation commences.

The second amendment that we have proposed recommended that there be legislation authorizing the Commission to fill this gap for a reasonable period of time in order to afford the licensee opportunity to furnish financial protection in the required amount.

Then, the proposed amendment includes a proposed floor of $1 million which the Commission would have no obligation below. An example of what this amendment is driving at would be the following:

Let us suppose that a reactor owner has an insurance policy for the full amount of insurance available—$60 million. Then, he has an indemnity agreement with the Commission for $500 million covering any losses above $60 million. Let us suppose he has an accident and the losses turn out to be $10 million.

The insurance companies pay $10 million, but they are not willing to contract in advance that as fast as they pay out that $10 million they will reinstate the face amount to $60 million. After they have paid the $10 million, there is only $50 million insurance remaining, but the Government indemnity only picks up at $60 million.

So there is a $10 million gap. What this legislation would do would be to allow the Government's $500 million indemnity to close that gap for a reasonable period—I think 90 days is proposed in the bill—during which time the licensee would have an opportunity, and we would have an opportunity and the insurance companies, to consider what steps could be taken.

Maybe they could negotiate a reinstatement. Maybe the licensee could show other resources. So this is just a provision to allow the Commission to close that kind of a gap for a temporary period.

Representative DURHAM. But it does not increase our liability?

Mr. PRICE. It does not increase the total amount of the Government's liability. It merely changes the point at which the liability would become effective for a temporary period.

Representative DURHAM. You would be liable for the temporary period of whatever period you set up?

Mr. PRICE. That is right.

Representative DURHAM. Then, it would increase our liability for that period?

Mr. PRICE. That is right. This is a problem we have. The insurance company's position seems to be a reasonable one. They say they are sure in the normal case they will be able to negotiate a reinstatement of the face amount of the policy after they have paid claims, but they say they cannot contract in the beginning for an automatic reinstatement because if the losses turn out to be substantial, they will have very shortly overcommitted their capacity.

Representative HOSMER. In understanding the theory behind this, let us assume that there are five policies provided for the $60 million liability, and they run to five different companies.

One of them has this accident and their insurance is then reduced to $50 million. What about the other four?

Mr. PRICE. $60 million. They stay where they were.

Representative HOSMER. Is not the insurance company running the same risk as to an accident with the other four as to a reactor reaccident in connection with the first?

Mr. PRICE. I think maybe they could explain this better than I could. I think the answer is that every time they sign an insurance policy for $60 million they know then what their total commitment is. But if they make a contract in each one of those policies to reinstate to $60 million as fast as they pay losses, then they do not know how much they are committed for.

Mr. TOLL. Does this mean that in that case the insurance companies have resources available up to $300 million?

Mr. PRICE. I do not know how the insurance companies figure matters like this. They, of course, have to use judgment as to what their total losses during any period are likely to be. I think you probably would have to find out from the insurance companies as to what kind of reserves they consider are necessary to meet these obligations.

Representative DURHAM. Is not this a little bit different policy from anything else we have had in the insurance field? When my house gets burned down, and I build it back, I can go out and buy the same amount of insurance that I had before. It does not reduce the insurance. If we have an accident, we repair it and we go to operating on the same basis as we did prior to the accident. Why do they want to reduce the insurance?

Mr. PRICE. I am sure they can defend their position better than I can, but the essence of their position, as I understand it, is just simply that if they agreed automatically to reinstate the policy, they would be, perhaps, running the risk of committing themselves for amounts not only beyond their capacity, but without knowing really the extent of the commitment they were making. They could have accident after accident, conceivably, and continue to pay and the first thing you know on any given policy they would have paid out much more than their capacity.

Representative DURHAM. They do that every day in the automobile insurance business.

Mr. PRICE. I think that is a little bit different.

Representative DURHAM. What is the difference?

Mr. PRICE. In the automobile insurance business they have actual experience. They pretty well know how many accidents they will have each year and how much they will have to pay out and charge premiums accordingly.

Representative DURHAM. When they started out, they did not have any experience. Of course, they have learned a lot since then.

Mr. PRICE. There again, the amount at stake is a whole lot less. Maybe a couple of hundred thousand, but here you are talking about $60 million which is far greater than any liability policy that has ever been written.

Representative DURHAM. That is true. When you count them all up, with several million automobiles, you run into millions and millions, too.

Mr. PRICE. That is right.

Representative DURHAM. That is beside the point. I think we should be pretty clear on what we are doing here on these amendments. I think this was discussed pretty thoroughly at the time we had the act before us, as I recall.

Representative HOSMER. I have a question involving the policy, too. It appears that the policy of the Price-Anderson Act is that there shall be a public liability for $60 million.

Mr. PRICE. Or whatever amount is fixed.

Representative HOSMER. Yes. It is the further policy of the act that responsibility shall be handled by insurance. Is it possible that a licensee can be a self-insurer?

Mr. PRICE. Yes, sir. The act recognizes that and so do our regulations.

Representative HOSMER. So there are two alternative means by which responsibility can be exercised. After the $60 million or whatever amount the Commission fixes, comes the public responsibility. That is the philosophy of the act.

Mr. PRICE. You mean the $500 million Government indemnity?

Representative HOSMER. Yes.

Mr. PRICE. That is right.

Representative HOSMER. Here we have in your hypothetical case $10 million that, under the philosophy of the Price-Anderson Act, is the responsibility of the licensee. Under this exemption in particular circumstances, you are asking that, not withstanding the fact that the licensee may be able to respond to that $10 million in damage outside the insurance, the Government shall assume the burden.

Mr. PRICE. For a 90-day period.

Representative HOSMER. Why? What is the equity? Why should not the licensee be required to assume that responsibility?

Mr. PRICE. If the licensee has elected to be self-insured and is financially able to fill that $10 million gap, then I am not sure in that particular situation there would be any need for the Government to come in and close the gap.

If he is dependent on private insurance and he cannot get an automatic reinstatement provision, the alternative might be, that in order to avoid that $10 million or $20 million gap, either he might have to close down or the Commission might have to close him down.

It was our thought that a 90-day period was a reasonable time to protect the public while this problem was being settled, because there would be several possible solutions. A showing of self-insurance would be one of them.

Representative HOSMER. Let me ask my question a little more precisely. Why should not this committee review the proposed amendment so that it is applicable only in circumstances where the licensee is unable from its assets to respond to that gap?

Mr. PRICE. Offhand, I am not sure that would not be all right. The only trouble is it takes a little bit of time to make the showing and to find out whether he can make the showing of financial protection or whether we can determine it.

Representative HOSMER. That would be after the fact of the second accident, anyway, when it came time to collect damages?

Mr. PRICE. Yes.

Representative HOSMER. So it would always be a determinable fact. I can see this disadvantage to it. It would be some discouragement to people who are trying to advance in this field and it appears to me that the whole policy of the act is to encourage advancement with some freedom against liability of a licensee.

Commissioner FLOBERG. That is certainly one point. I can also see some horrible complexities in connection with the provisions that the man might have in his corporate financing instruments. He may have loan agreements with banks or mortgages or other corporate documents that have provisions in them that would make his exposure to this additional potential liability impossible to assume for some reason that I can't anticipate now.

Representative HOSMER. You would have many discoveries after adjustment proceedings.

Commissioner FLOBERG. As you well know, these lenders frequently protect themselves with pretty carefully drawn documents and they might complicate the situation somehow.

Mr. TOLL. Mr. Price, could you explain how this $1 million floor works?

Mr. PRICE. I do not have the text of the amendment, but I think the idea here is that if you assume there is a $5 million policy and four and a half million has been paid out in claims the Commission just would not get into that small claims business to pick up that half million dollars. You just would not put the Government into the field below a million dollars.

Representative DURHAM. Do you have any further statement, Mr. Price, on the two amendments?

Mr. PRICE. That is all I had on the two amendments, sir. I believe I have mentioned everything in the statement except the problem of indemnification of licensees other than reactors where it is discretionary with the Commission rather than mandatory as in the case of facilities like reactors. The Commission has not exercised that discretion. We have not applied the indemnity provisions to isotope licensees or source or special nuclear materials licensees. We have made a contract for a study of this problem, particularly the problem of the potential consequences of a criticality accident in the handling of special nuclear material like in a fuel element plant, and, depending on the results of that study, we will take a look at whether we should put the indemnity program into effect with respect to special nuclear materials. Actually, with the amount of insurance available, the licensees for these materials have been buying varying amounts of insurance.

Representative DURHAM. The act has been in effect for 2 years. Has there been any application for funds?

Mr. PRICE. None whatever.

Mr. Chairman, this concludes my summary of this statement.

Representative DURHAM. I notice on page 13(b)—does Mr. Hennessey want to make a statement on that?

Mr. HENNESSEY. Yes, Mr. Chairman, I have a brief statement here reporting on the activity of the Commission under section 170(d) of the Atomic Energy Act, under which we indemnify AEC contractors.

As reported last year, under authority contained in section 170d of the Atomic Energy Act of 1954, as amended by Public Law 85–256, 85th Congress, the Commission adopted a policy of entering into agreements of indemnification extending the statutory indemnity—

a. To AEC contractors engaged in the operation of nuclear reactors;

b. to AEC contractors engaged in operating production or utilization facilities;

c. to AEC construction contractors whose work may place them under the risk of occurrence of a substantial nuclear incident;

d. subject to authorization by the General Manager, to any other AEC contractors, other than those specified in a, b, and c, who engage in activities involving the risk of occurrence of a substantial nuclear incident.

2. In carrying out this policy the Commission has executed statutory indemnity agreements as to 33 contracts. These agreements cover most of the major AEC installations operated by AEC contractors. Included in these contracts is an agreement with the railroad associations covering nuclear incidents arising in the course of transportation of materials for the Commission.

3. To date there have been no claims filed under the statutory indemnity and consequently no expenditure of money.

4. The insurance industry has made its claims adjusting service available, if needed, in the area of statutory indemnity for either AEC licensees or AEC contractors. Definitive agreements outlining the details of these arrangements are being negotiated by groups representing various segments of the insurance industry.

Representative DURHAM. Does that complete your statement on that point?

Mr. HENNESSEY. Yes, sir; it does.

Representative DURHAM. Are there any questions?

If not, thank you very much, Mr. Hennessey.

Mr. HENNESSEY. Thank you, sir.

Representative DURHAM. Mr. Price, I see you have a statement on the Advisory Committee.

Mr. PRICE. Yes, sir.

Representative DURHAM. We will place your full statement in the record as we did before and you may summarize it as you wish.

Mr. PRICE. I will only read parts of it, if that is agreeable.

II

OPERATIONS OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(Presented by H. L. Price, Director, Division of Licensing and Regulation)

This testimony deals with our work with the Advisory Committee on Reactor Safeguards.

The Commission initially filled only 10 of the 15 positions on the committee. Our purpose was to allow for the staggering of members' terms, and to leave room for the addition of such special skills as further experience might indicate to be desirable. As the Joint Committee is aware, Dr. Mark Mills resigned in early 1958 because of the press of other responsibilities. Dr. Manson Benedict resigned in December 1958 for the same reason. These were important losses to the committee membership; however, the Commission has been fortunate in being able to enlist four additional members who are also eminently qualified: Dr. Franklin A. Gifford, Jr., meteorologist-in-charge of the Oak Ridge U.S. Weather Bureau; Dr. Henry Newson, professor of physics at Duke University; Dr. Leslie Silverman, associate professor of industrial hygiene engineering, Harvard School of Public Health; and Dr. Charles R. Williams, assistant vice president, Liberty Mutual Insurance Co. Three vacancies now exist on the committee and will be filled with due consideration to the criteria mentioned above and to the role of the committee as an independent advisory group.

The Commission's report dated March 31, 1959, to the Joint Committee on Operations under section 170 of the 1954 act, as amended, summarizes the Advisory Committee's operations during the period from January 1, 1958, to March 31, 1959. During that period the Advisory Committee reviewed 23 AEC and Department of Defense projects and eight projects subject to licensing. The report describes the status of each of these projects and includes copies of the committee's reports. The ACRS also reviewed some classified projects which were reported separately to the Joint Committee.

With respect to reactors subject to licensing, licensing actions were taken as described below:

a. Consolidated Edison Co. of New York.—During 1958, the company filed amendments to its application to give further design details on the containment structure. On the basis of the safety review by the ACRS and our own staff, consideration is now being given to issuance of an amendment to the construction permit to approve the containment design.

b. Westinghouse Testing Reactor at Waltz Mill, Pa. This project is nearing completion. ACRS and the staff have conducted the necessary safety reviews incident to the issuance of a license to operate the reactor and are of the opinion that the reactor can be operated at the prescribed location without undue risk to public health and safety. As required by the Atomic Energy Act the matter of issuance of an operating license was set down for hearing and the hearing was held on March 25, 1959. No petitions for intervention were received.

c. General Electric Testing Reactor (GETR), at Vallecitos, Calif. A construction permit for this reactor was issued in March 1958. In July 1958, the Advisory Committee and the staff concluded that the GETR could be operated as a testing reactor as proposed by General Electric Co. without undue hazard to the public health and safety. In accordance with the provisions of section 189 of the act, as amended, a public hearing was held on September 17, 1958. No petitions to intervene were filed. An operating license was issued on January 7, 1959, for operation at power levels not exceeding 33,000 kilowatts, pursuant to the hearing examiner's decision of December 16, 1958.

d. Commonwealth Edison Co.'s Dresden Nuclear Power Station is scheduled for completion in August 1959. Portions of the final hazards summary report, incident to the operation of the facility, have been reviewed by ACRS and the staff. Further detailed reviews remain to be made. Upon completion of these reviews by the Advisory Committee and the staff, the matter will be set down for public hearing on the question of issuance of an operating license.

e. General Electric Co. Vallecitos Boiling Water Reactor (VBWR) was licensed on August 31, 1957, for operation at power levels up to 20 megawatts (thermal). Upon application by the company and following the staff's analyses and advice of the Advisory Committee, the license has subsequently been amended in several respects including authorization to operate at an increased power level of 50 megawatts (thermal).

f. Massachusetts Institute of Technology.—This project comprises a 1,000 kilowatt (thermal) research and medical reactor located on the MIT campus at Cambridge, Mass. The construction permit was issued on May 7, 1956. Following the safety review of the completed reactor and offer of public hearing, the operating license was issued on June 9, 1958.

g. Carolinas Virginia Nuclear Power Associates, Inc.—The Commission also referred to the Advisory Committee for review and advice the matter of the proposed site of the Carolinas-Virginia 60-megawatt (thermal) reactor. The committee concluded that a reactor of the general type and power level as presently proposed, including provision of suitable containment, could be operated at the site without undue hazard to the health and safety of the public. Applications for a construction permit and license has not yet been received from the company. This project is included in the third round of the power demonstration program.

h. Yankee Atomic Electric Co. is constructing its pressurized light water-moderated and cooled nuclear power reactor at Rowe, Mass. On October 15, 1958, the Advistory Committee reviewed data submitted by the company in connection with (1) an alternative method for determining the effects of plutonium buildup on the nuclear characteristics and stability of this reactor, and (2) the waste disposal facilities planned for the Rowe plant. In its report dated October 21, 1958, the committee concurred generally with Yankee's proposals. Some additional data by the applicant on this and other matters will require further discussion with the committee.

i. National Aeronautics and Space Administration.—This project comprises a 60,000-kilowatt (thermal) testing reactor at the Plum Brook ordnance works near Sandusky, Ohio. Upon completion of safety reviews by the ACRS and the staff the matter of issuance of the construction permit was set down for public hearing. The hearing, at which there was no formal intervention, was concluded on February 21, 1958. The hearing examiner issued his intermediate decision on June 24, 1958, and ordered that unless exceptions were filed on or before July 18, 1958, or unless the Commission reviewed the examiner's decision on its own motion, the application for a construction permit be granted, effective July 21, 1958. At the end of the period allowed for filing exceptions, the Commission permitted the examiner's decision to become final and the construction permit was issued on July 21, 1958.

In addition to the reactor projects reviewed by the Advisory Committee, the Commission issued construction permits or operating licenses on 46 small research and training reactors and 9 critical experiment facilities. There were also issued licenses to export 7 research reactors, 2 testing reactors, and 1 power reactor (to Belgium) under bilateral agreements for cooperation with the foreign governments concerned.

PARALLEL PROCEDURES

The Commission has recently adopted a policy which will permit substantially the same kind of public participation in the safety review of certain Commission-owned reactors as is now available with respect to reactors subject to licensing. The reactors covered by this new policy will be those not located at Commission-owned installations and which are to be operated as part of conventional electric utility systems. Projects currently affected by this policy are Consumers Public Power District reactor and the reactors in the second round of the power reactor demonstration program. Under these parallel procedures copies of the contractor's hazards summary reports, the reports of the ACRS and the staff analyses prepared by the Commission's Hazards Evaluation Branch will be made available to the public. In addition, each project will be set down for public hearing after due notice to the public.

SAFETY CRITERIA

Another important aspect of the Advisory Committee's role in advising the Commission on reactor safety matters is the review of reactor safety standards and criteria of general application. The committee and the Commission staff have devoted a great amount of time to the problem of site criteria. Other tentative standards proposed by our staff now under study with the Advisory Committee include those for control rod design, control system design, and external containment structures.

Representative DURHAM. You may proceed.

Mr. PRICE. This part of our testimony deals with the work that we have with the Advisory Committee on Reactor Safeguards. The Commission initially filled only 10 of the 15 positions on the committee. The purpose was to allow for the staggering of members' terms and to leave room for the addition of such special skills as further experience might indicate to be desirable. As the committee is aware, Dr. Mark Mills resigned in early 1958 because of the press of other responsibilities. I would like to add that his untimely death was a great loss to the Commission and the country.

Dr. Manson Benedict resigned in December 1958. These were important losses to the membership of the committee. However, the Commission has been fortunate in being able to enlist four additional members who are also eminently qualified. Dr. Franklin A. Gifford, meteorologist in charge of the Oak Ridge United States Weather Bureau; Dr. Henry Newson, professor of physics at Duke University; Dr. Leslie Silverman, associate professor of industrial hygiene engineering, Harvard School of Public Health; and Dr. Charles R. Williams, assistant vice president, Liberty Mutual Insurance Co. Three vacancies now exist on the committee and will be filled with due con-

sideration to the criteria mentioned above and to the role of the committee as an independent advisory group.

The Commission's report dated March 31, 1959, to the Joint Committee on operations under section 170 of the 1954 act, as amended, summarizes the Advisory Committee's operations during the period from January 1, 1958, to March 31, 1959. During that period the Advisory Committee reviewed 23 AEC and Department of Defense projects and 8 projects subject to licensing. The report describes the status of each of these projects and includes copies of the committee's reports. The ACRS also reviewed some classified projects which were reported separately to the Joint Committee.

Mr. Chairman, the next two pages simply list the licensing cases that have been reviewed by the ACRS and state the status of those cases. This is covered in more detail in the report that we sent up on April 1, 1959.

Representative DURHAM. The Advisory Committee has passed on all of these that you mentioned?

Mr. PRICE. That is right. All of these are licenced cases that have been reviewed by the Advisory Committee.

Going to the top of page 26, in addition to the reactor projects reviewed by the Advisory Committee, the Commission issued construction permits or operating licenses on 46 small research and training reactors and 9 critical experiment facilities. There were also issued licenses to export seven research reactors, two testing reactors, and one power reactor (to Belgium) under bilateral agreements for cooperation with the foreign governments concerned.

Representative DURHAM. All of these were approved by the Advisory Committee?

Mr. PRICE. No, sir. This paragraph deals with the small research and training reactors. We don't usually submit them to the Advisory Committee for advice. We do submit all the reports that we get on them for information, and we keep the committee up to date at each meeting on what action we have taken. We, and I believe the committee, have not thought it worth while to burden them with these small research cases. As far as the export cases are concerned the Commission does not make a safety determination in those cases. We only make a determination that it is authorized by the bilateral agreement. The safety determination is up to the foreign government where the reactors go.

Representative DURHAM. I supposed from the beginning of the first sentence, "In addition to the reactor projects reviewed by the Advisory Committee," all of those were reviewed by the Advisory Committee.

Mr. PRICE. That is right. All of those that I listed and the Government-owned reactors that are listed in the April 1 report were all reviewed by the committee.

The committee reviews all power and test reactors. They do not review all of the small research reactors and that is what this statement is referring to.

I would like to mention the subject of parallel procedures. The Commission has recently adopted a policy which will permit substantially the same kind of public participation in the safety review of certain Commission-owned reactors as is now available with respect to reactors subject to licensing. The reactors covered by this

new policy will be those not located at Commission-owned installations and which are to be operated as part of conventional electric utility systems. Projects currently affected by this policy are Consumers Public Power District reactor and the reactors in the second round of the power reactor demonstration program.

Under these parallel procedures copies of the contractor's hazards summary reports, and the reports of the Advisory Committee on Reactors Safeguards and the staff analyses prepared by the Commission's Hazards Evaluation Branch will be made available to the public.

In addition, each project will be set down for public hearing after due notice to the public.

Finally I have a brief statement on safety criteria.

Another important aspect of the Advisory Committee's role in advising the Commission on reactor safety matters is the review of reactor safety standards and criteria of general application.

Representative DURHAM. Does that mean that every reactor is set down for public hearing?

Mr. PRICE. All of the licensed reactors are subject to public hearing under the law. On the power test reactors a hearing is held whether anyone asks for it or not. In the case of the small research reactors a hearing is offered. This statement I just made on parallel procedures applies to those power reactor projects that are not subject to licensing. Projects like the Consumers Public Power District where the reactor will be owned by the Commission. However, it will be operated by the utility as part of a generating system, and in those kinds of cases the Commission has decided that it will have public procedures, including a hearing, which would parallel the licensing procedures, so that the public will have an opportunity to participate.

Representative DURHAM. Do you have anything further?

Mr. PRICE. I believe I just about completed. I was going to add the final two sentences. The committee and the Commission have devoted a great amount of time to the problem of site criteria. Other tentative standards proposed by the staff and now under study with the Advisory Committee include such matters as control rod design, control system design and external containment structures.

That completes my statement, Mr. Chairman.

Representative DURHAM. Thank you very much, Mr. Price.

We will now hear from the chairman of the Advisory Committee on Reactor Safeguards, Dr. McCullough.

STATEMENT OF DR. ROGERS McCULLOUGH, CHAIRMAN OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS (ACCOMPANIED BY DR. WILLARD B. CONNER, DR. RICHARD L. DOAN, AND COLONEL RUEUL STRATTON, MEMBERS OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS)

Dr. MCCULLOUGH. May I introduce the other members of the Advisory Committee on Reactor Safeguards who are here with me.

The first one is Dr. Willard B. Conner, who is vice chairman of the committee, and with the Hercules Powder Co.

The gentleman on my right is Dr. Richard L. Doan, of the Phillips Petroleum Co.

On the far left is Colonel Stratton, of the Travelers Insurance Co.

Representative DURHAM. Thank you very much, Doctor. We are very glad to have you gentlemen here with us today.

You may proceed with your statement.

Dr. MCCULLOUGH. Very well, sir.

The Advisory Committee on Reactor Safeguards appreciates this opportunity to appear before the Joint Committee on Atomic Energy. Although there is only a token representation here today, the entire committee has taken part in the preparation of our formal testimony.

During the period from January 1958 through April 1959 the committee has held 12 meetings. It has reviewed and furnished letter advice to the Commission on the following reactor projects. In group I are those items upon which no further action is presently planned.

GROUP I

Massachusetts Institute of Technology.
General Electric Vallecitos Boiling Water Reactor.
General Electric Test Reactor.
Westinghouse Testing Reactor.
Argonne Low Power Reactor.
Oak Ridge Research Reactor.
Brookhaven National Laboratory Research Reactor (Graphite Annealing).
Materials Testing Reactor (Pu and U^{233} Loadings).
Wahluke Slope Problem.
Nine military program reactor projects, which are in the main classified.

In group II are items at various stages of consideration by the Advisory Committee on Reactor Safeguards prior to final advice.

GROUP II

Yankee Atomic Electric Co.
Commonwealth Edison Reactor (Dresden).
Consolidated Edison Reactor (Indian Point, N.Y.).
Carolinas Virginia Nuclear Power Associates (Parr Shoals, S.C.).
Rural Cooperative Power Association (Elk River, Minn.).
City of Piqua (Piqua, Ohio).
Hanford Production Reactor Problems—including New Production Reactor.
Nuclear Merchant Ship (N.S. *Savannah*).
Plutonium Recycle Test Reactor.
Heavy Water Components Test Reactor.
EBR–II—Experimental Breeder Reactor.
SPERT–III—Special Power Excursion Reactor Test—somewhat higher power.
Reactor Site Criteria.
Oak Ridge Gas-Cooled Reactor.
Philadelphia Electric Co. Gas-Cooled Reactor.
Hallam Nuclear Power Facility.
One military program reactor project.

The committee now has a membership of 12. The statute allows a maximum of 15. During the past year one member has resigned because of the pressure from other duties, and the Commission has appointed four new members. The Advisory Committee on Reactor Safeguards has representation from many disciplines: chemistry; chemical, mechanical, and sanitary engineering; environmental hygiene; meteorology; physics; and reactor operations. With this wide coverage, it is intended that the committee will have competence in most of the areas likely to arise in the examination of reactor hazards. The members can devote only a limited amount of time to the work of the Advisory Committee on Reactor Safeguards.

All members of the committee hold positions outside of the Atomic Energy Commission in addition to their service on the committee.

During the initial period of the statutory status of the Advisory Committee on Reactor Safeguards, the chairman has been able to arrange to spend an appreciable fraction of his time on committee work. There are obviously heavy demands on the time of every member of the committee.

METHOD OF OPERATION

The manner in which the committee carries out its business may be of interest to you. Although it often adapts its review procedure to the needs of a specific case, there has developed what might be called a normal pattern of operation. Almost all of the reviews are undertaken at the specific request of the Commission. The pertinent hazards summary reports, written by the contractors or applicants for license, are reviewed by the members individually before a meeting of the Advisory Committee on Reactor Safeguards on the subject.

Also available before a meeting is an analysis of the key safety questions presented by the Atomic Energy Commission staff. At an ACRS meeting, the committee is first briefed by the staff in a question and answer session, then it may hear a short formal presentation from the contractors or applicants on the major safety problems and defenses. This presentation is followed by a discussion and question period between the contractor or applicants and the committee. The committee then formulates its opinion in executive session. Frequently, a few significant items remain to be further explored. To expedite the clarification of these points, a subcommittee may be appointed which works with the AEC staff and the designer or proposed operator. At a later meeting, the topic is again reviewed and the final opinion of the committee is worked out in executive session. The committee reports its recommendations in the form of a letter addressed to the Chairman of the Commission.

REVIEW PHILOSOPHY

During its meetings, the Advisory Committee on Reactor Safeguards has repeatedly discussed the depth and degree of completeness which it ought to reach in its hazards reviews. There exists an inherent conflict between what can be reasonably accomplished by the committee and what may be expected of it by the public. The committee is convinced that its major contribution to reactor safety has been, and will continue to be, the stimulus it gives reactor designers, constructors, and operators to delve deeply into matters concerning reactor safety, and to seek originality in solving these new safety problems.

In its reviews, the committee has explored two alternative approaches:

In the first method, there has been a check in considerable detail of a few of the many significant factors related to reactor safety—it being assumed that the response from the applicant to these areas selected at random is representative of the thoroughness of his handling of all safety items.

Secondly, the committee has attempted to assure itself that all of the significant factors relating to reactor safety have been reviewed by an informed group other than the applicant. Such a review should include a detailed consideration of the hazards reports and in

addition should uncover any significant items which may have been overlooked in those reports.

The committee now considers that this second approach is the goal toward which it should work. This goal cannot realistically be achieved without long experience both on the part of committee members and of the AEC staff which contributes to its analyses of the hazards problems.

It must be recognized that the review must be more thorough than is customary for usual industrial facilities or for power stations. This is based upon the far greater toxicity of radioactive materials in general and because of the concern that a plant failure might result in seriously impairing the health of large numbers of people. The committee does not wish to be a party to the imposition of unnecessary additional reviews or controls. The committee is attempting to use criteria and standards which already exist for components for reactor systems where they are adequate. It has continually urged efforts to arrive at additional criteria and standards in those areas where none now exist.

ORGANIZATIONAL GROWTH

The committee expects that there will be a continuing improvement in the organizational means which will facilitate its following the latter review philosophy. It has found it necessary to set up a Washington Office of the Advisory Committee on Reactor Safeguards and to enlarge its complement to two technical-administrative men supported by two nontechnical secretaries. It has found it necessary to place deadlines on the submission of topics for committee consideration so that its members have adequate time to review the reports. It has found it necessary to call in consultants having special skills and experiences.

The committee has a continuing problem of maintaining competence in reactor safety because of the rapid expansion of nuclear technology. The committee has access as may be required to the inspection reports prepared by the Commission's Division of Inspection. It is briefed periodically on progress within the Commission's reactor safety research program. The committee keeps abreast of the broad aspects of reactor safety in that its members participate in meetings of professional societies, symposia on safety matters, standards committees, et cetera.

The committee is now exploring whether it can effectively utilize, and how it may obtain, additional AEC staff support which is immediately responsive to the current needs of the committee.

As a final comment, it is mentioned that the committee is experiencing a shift in the way it carries out its business from its previous informal relationship with the atomic energy industry and with the AEC to one of a more formal nature. It has begun to be concerned with aspects which are not entirely related to safety and which in the broad sense might be called regulatory formalities. For guidance in these matters the AEC has provided the committee with legal counsel.

That concludes our statement.

Representative DURHAM. Thank you very much, Doctor. I think the group is to be congratulated on the fine work you have done in such a short period of time. You have been set up now for how long?

Dr. MCCULLOUGH. Since September 2, 1957.

Representative DURHAM. About 2 years.

Dr. MCCULLOUGH. Yes, sir.

Representative DURHAM. I know you find it very difficult, since most of you are busy men, to take the time out. I think it is a very patriotic duty that all of you are performing for this country. I think this is one of the important matters that the American people ought to be assured. You are certainly rendering a very fine service, all of you.

Dr. MCCULLOUGH. Thank you, sir.

Representative DURHAM. I want to commend you for the time and effort you are devoting in this matter.

Representative VAN ZANDT. In the last paragraph, you say:

> The committee has begun to be concerned with aspects which are not entirely related to safety and which in the broad sense might be called regulatory formalities. For guidance in these matters the AEC has provided the committee with legal counsel.

Will you further comment on this statement?

Dr. MCCULLOUGH. This comes about from our statutory position and a concurrent requirement that we must publish our reports. We feel ourselves to be technical people advising on technical matters.

In our committee meetings we have been rather informal in exchanging views with technical people. When you have to write your report so that the layman on the street can understand it, it means we have to stop and think about how this will sound to the uninitiated, if you please. This is one of the things.

There are a number of other small matters. We must watch schedules for hearings to see that there is a waiting period. This means that we do have a concern for delays that may be caused applicants.

All of these matters all go together. It is merely our statutory basis that is giving us this trouble. I think it is part of life, and there is nothing you can do about it.

Representative VAN ZANDT. Thank you.

Representative DURHAM. Dr. Doan, do you have anything to add?

Dr. DOAN. No, Mr. Chairman. I think Dr. McCullough has covered it quite adequately, unless there are some questions any committee members have.

Representative DURHAM. Do either one of you have anything to add to the statement by Dr. McCullough?

Representative HOSMER. Doctor, I want to ask you something along the line Mr. Van Zandt has. Every time we see a successful operation like yours, it seems to breed new duty. I am wondering if this is largely because of that, or an inevitable application of Parkinson's Law. I don't say that lightly, either.

Dr. MCCULLOUGH. I think I understand you.

Representative HOSMER. I think the value of the committee has been its individual members. We see an increasing size staff intervening between the work and the committee. I am wondering if we are actually accomplishing its purpose.

Dr. MCCULLOUGH. Let me say this: The committee is very sensitive to the matter of unnecessary organization and unnecessary procedures. I think in all truthfullness some of this additional staff was required because of the increase in load. There is a big backlog, there is a time delay in these reactor projects.

For example, the Dresden plant was started several years ago and it will be loaded sometime in the latter part of this year and go into full operation sometime next year. We have had piling up on us a large number of cases which are just beginning to get to the place where they must be given serious consideration. That is part of it.

The other part of it is the complexity of regulatory procedures, and we are experiencing that. Perhaps it is Parkinson's law in a sense, but I think it is also the facts of technology mixed in with it. This is my offhand opinion.

Representative HOSMER. You are dealing in this thing all the time. Is the situation becoming such that it is time to consider some changes in this committee setup? For instance, that it be a smaller committee on a permanent basis as an established agency of the Government, or should it continue like it is going? What is your opinion on that?

Dr. MCCULLOUGH. I really don't have a firm opinion on that score, sir.

Representative HOSMER. Do you have any suggestion for a different organizational setup than you have now?

Mr. MCCULLOUGH. No, I don't think I have a considered opinion on it. We do think about it. The committee has felt in the past, and still feels, that it is of service to the AEC, and when it comes to organizational matters we have sort of let them make the recommendations on that score.

Representative DURHAM. How about the cooperation of the AEC? Has it been satisfactory?

Dr. MCCULLOUGH. We have had rather good support. As I said in here, we are working toward a better and better working relationship.

Representative DURHAM. The relationship is satisfactory at the present time?

Dr. MCCULLOUGH. I would say so; yes, sir.

Representative HOSMER. Mr. Stratton, are you a technical man or in the insurance industry?

Mr. STRATTON. I am a chemical engineer that went into the insurance business.

Representative HOSMER. I don't suppose it would be appropriate to ask you questions about procedure.

Mr. STRATTON. No, I am strictly a technical man.

Representative BATES. Along the lines already suggested by Mr. Van Zandt and Mr. Hosmer, on page 2 you indicate that the members can devote only a limited amount of time.

I wonder if that gives you some concern as you prepare these reports, and particularly because of the reliance that so many people put in the work which you do. Is this backlog becoming of such a size and proportion that some changes should be made?

Dr. MCCULLOUGH. I wouldn't be prepared to say that changes ought to be made at this time. I think it is a question which must be continuously reviewed. We are very much worried about the workload that these large reactor projects impose upon us.

Representative BATES. Do you feel comfortable in submitting reports on these various things when you do have limited time?

Dr. MCCULLOUGH. Sir, I don't think any of us feel comfortable when we submit any reports. We do the best we know how. I think we satisfy our consciences that we have done the job adequately up

to now. But we are not entirely satisfied, being technical people, we never would be satisfied.

Representative BATES. You feel as far as the past is concerned, you are satisfied with the degree to which you have gone into these problems, but as far as the future is concerned you will have reason for some concern?

Dr. MCCULLOUGH. I think that is a fair statement, although it is patting ourselves on the back when I say it.

Representative BATES. In your own mind you are satisfied?

Dr. MCCULLOUGH. Yes, sir.

Representative HOSMER. I did have one other question I wanted to ask you, Doctor. As a matter of curiosity, when you review these projects, I would assume that on a number of instances there have been suggestions made for the improvement of the safety.

Dr. MCCULLOUGH. Let me make another point clear here. The committee has a policy of not telling people how to design their reactors. We feel that they know much more about it than we do. They present their point of view and their design and the reasons for it. We agree with them. In an exchange of views suggestions do arise as to how modifications might be made, and in some cases they are adopted.

Representative HOSMER. Have there ever been instances where it has turned out upon examination that there has been an overdesign and that there are features that are not necessary for reasonable safety, or have we reached that point?

Dr. MCCULLOUGH. This is a personal view. I think there are cases where there may have been overdesign. But in a field like this I am afraid if people are being prudent and very conservative, and I think we are, this is a natural result. I think it is to be regretted, but we are attempting all of us in the business to find a reasonable way of doing it.

Representative HOSMER. Overdesign adds to the capital investment of the project and brings the date of feasibility much further away.

Dr. MCCULLOUGH. That is right. I think overdesign is to be deplored. Do you want to speak to that, Dr. Doan?

Dr. DOAN. I might add just a word to that. The design of a reactor at any given time must take cognizance of our knowledge concerning the behavior of such reactor. Actually, there are many things that we don't know, really, concerning the behavior of a reactor. Therefore, the design must necessarily be conservative.

In the light of what we hope to know a few years down the line it may indeed turn out that the design was more elaborate than necessary. What this means is that we need to exert every reasonable effort to learn more about the behavior characteristics of reactors.

I might just mention that at the National Reactor Testing Station we do have a project called the SPERT project. A special power excursion reactor test which I am sure some of you have seen on your visits out there, which has as its objective the acquiring of more information than we have at present on the behavior characteristics and on the extent to which it is necessary to go to control reactors.

To make reactors more economical we need to simplify the controls. We need to strip the protective devices that cost money down as much as we can justifiably do on the basis of our knowledge. It is possible

that some things are being built in presently in the way of containment, for example, that turn out to be more elaborate when we learn the limitations and the fact that you can have reasonable protection without these elaborate devices.

It is a matter of knowledge.

Representative HOSMER. May I say this: My question was more or less directed to the fact that you as a committee cover the broad spectrum of reactor development in this country. In the course of your investigations, you may possibly run across some knowledge that an individual group of reactors designers does not have. I am wondering if the committee does in fact operate as a conduit for information that pertains not only to additional safety features but those that may be unnecessary.

Dr. DOAN. I can say we do that. I think we can say that thus far we have not had any cases where we have recognized what we would consider any serious overdesign. The committee does function in raising questions about whether various types of things that can happen have been adequately taken care of in controls that have been designed into the reactor. Sometimes we find certain things that have either fallen in a crack, so to speak, or else have not had adequate analysis. Sometimes adequate analysis shows that the controls proposed are satisfactory. In general, I believe we can say that we have not found any of the reactors to have been overdesigned that we have had a chance to look at.

Dr. MCCULLOUGH. May I add one statement. We have had cases where we have had the opportunity to pass along information, which is not, of course, company confidential to an applicant, to the help of other people. We are always delighted when we can do so.

Representative DURHAM. Thank you very much for coming down and being with us today. We appreciate it very much.

Dr. MCCULLOUGH. Thank you, sir.

Representative DURHAM. Our next witness is Mr. Richard H. Butler, secretary of Travelers Insurance Company. Will you come forward Mr. Butler?

STATEMENT OF RICHARD H. BUTLER, SECRETARY OF TRAVELERS INSURANCE CO. (ACCOMPANIED BY D. C. THOMAS, ASSISTANT GENERAL MANAGER OF NUCLEAR ENERGY LIABILITY INSURANCE ASSOCIATION, AND ASHLEY ST. CLAIR, COUNSEL, LIBERTY MUTUAL INSURANCE CO.)

Mr. BUTLER. I am Richard H. Butler, secretary of the Travelers Insurance Co., and a member of the governing committee of NELIA.

On my left is Mr. D. C. Thomas, assistant general manager of NELIA, or Nuclear Energy Liability Insurance Association, if you haven't heard that term.

On my right is Mr. Ashley St. Clair, who is counsel for the Liberty Mutual Insurance Co. and a member of the drafting committee of the Mutual Atomic Energy Liability Underwriters.

I have no formal statement, but I might be able to cast some additional light on some of the comments Mr. Price made.

I made some very brief notes during Mr. Price's testimony, and there were two points on which I thought perhaps I could cast some light from an insurance standpoint.

The Commission has my sympathy in the matter of defining onsite property. We have had real difficulty with that. We define sites now on policies. You recognize that we insure in these pools a number of risks which are not now subject to indemnity. We insure the fuel fabricator type of risk, the chemical risk which deals with special nuclear material, and the waste disposal risk, all of which are not now concerned with the indemnity program. In addition we insure reactors. We have found that the only way we can do the job is to sit down and define the site risk by risk. We have sites running from parts of buildings to hundreds of acres.

We have tried to follow this general pattern: That which is directly connected with the operation—I recognize that the word "directly connected" is not necessarily fully meaningful, is part of the site. That part which is not connected is not part of the site.

Take an experimental setup where everything to do with that setup is in the nuclear energy field. There we have drawn the whole operation in. That would include—I think it was Mr. Hosmer who asked the question—the building where they handle the finances. We would include the clerical office operation in that type of thing. The whole operation is a nuclear energy project.

But if I can jump to something like the Penn State reactor or the MIT reactor, neither of which I have seen, but which I would imagine are set down on the campuses of the universities, we would take the reactor building, we would take hot laboratories connected with the reactor and which are either in the same building or adjacent buildings or elsewhere on the campus. We would bring all these in as part of the site. But a mathematics building which was right next door to the reactor building, or for that matter the finance building which was right next door, we would not include as part of the site.

To take another example, an industrial concern which is making fuel elements——

Representative HOSMER. How about where they duplicate the report on the results of the studies of the reactor?

Mr. BUTLER. I realize that is not financial. I would call it statistical, but I would put it in the same category. In other words, it is pure paper work.

Representative HOSMER. In that connection, you regard a building which has only a minor use in connection with a licensed activity as included within the language of this proposed amendment or excluded?

Mr. BUTLER. I am not an attorney, sir, and not very good on language.

Representative HOSMER. You are an insurance man?

Mr. BUTLER. Yes, sir. We are working with that language now and working with similar language of our own in policies. We are doing it simply on a risk by risk determination.

Representative HOSMER. Your answer to my specific question is "I don't know"?

Mr. BUTLER. Would you ask the question again, sir?

Representative HOSMER. As to a portion, less than half, of a building that is used in connection with a licensed activity, I would like to know whether that whole building, or only a part of it, or none of it, would be included.

Mr. BUTLER. I didn't understand your question properly. The part would be included. In this industrial case that I was going to mention I have that example. They are doing something nuclear in a section of this building. It is segregated from the rest of the building by suitable walls and protection. In the other part of the building they are manufacturing—not wheelbarrows, but nothing having to do with nuclear energy. We define the nuclear section of the building as the site.

We have another example of a case where a man is renting in a building and he does not rent the whole building. We take the portion he rents.

Perhaps the prime example would be the AGN reactor which was displayed at the Colliseum in New York, and we took that section of the floor on which the reactor stood as the site. I guess we took the whole exhibit of that company, so that the neighboring exhibits were offsite.

Representative DURHAM. As I understood Mr. Price, they intend to write this into the license for regulation. Which do you prefer? Your own determination as to what is offsite or onsite?

Mr. BUTLER. I have to draw a distinction, Mr. Chairman, between the indemnity and the insurance policy. In the insurance policy I see no way to reduce this to a formula. We have had to do it on an individual cut-and-fit basis. I would suspect that the indemnity would have to do the same thing, but the indemnity does not, from a selfish standpoint, directly affect me.

Representative DURHAM. I think the definition has worried the members of the committee as to what we would determine offsite or onsite.

Mr. BUTLER. This is probably no good for legislation, but I think it can be done with equity in every individual case. I do not think it can be reduced to a formula.

Representative DURHAM. The question I am directing to you is, do you prefer to make your own determination? You are making the contract. You could write into your contract what is onsite.

Mr. BUTLER. We describe the site in the contract.

Representative DURHAM. You do?

Mr. BUTLER. We write it in; yes, sir.

Representative DURHAM. At the present time?

Mr. BUTLER. Yes, sir. The printed portion of the contract refers to onsite and offsite and such things as that, but in the typewritten portion of the contract we insert a typed description of the site.

Representative DURHAM. There would not be any complication between writing the regulations in licensing the individual who is operating the reactor between your contract and the regulations that probably may come out of AEC when we give them this authority under this amendment?

Mr. BUTLER. If I understood properly, Mr. Price was asking for the right to define them individually, too.

Representative DURHAM. That is correct. You do not think there would be any conflict?

Mr. BUTLER. No, sir.

Representative DURHAM. You would have to abide by the regulations issued by the AEC under the law, would you not?

Mr. BUTLER. I don't know.

Representative HOSMER. Perhaps I might be able to put it this way: What is onsite and what is not onsite is a matter of law. It is not a matter of what you put in your contract. When you insure a licensee the limits are governed by law and not by your contract.

Mr. BUTLER. May I move that question to Mr. St. Clair?

Representative HOSMER. Yes.

Mr. ST. CLAIR. I would respectfully disagree with your conclusion, Mr. Hosmer. We, of course, intend as far as possible to have our policies fit the indemnity. We run into situations of this kind: Where you have two operations on the same general location, like a fuel fabricating plant, and a reactor, we do not issue two policies, because of our accumulation of limits problem. We issue one policy which covers both installations. Maybe we include an area as our definition of site which includes both of them. Maybe, however, we include in effect two definitions of site, one for the fuel fabricating plant and one for the reactor. It depends on the circumstances. We sometimes run into a situation where we will have two reactors, as at Vallecitos. There we define the site as all of the Vallecitos area which General Electric Co. owns. I would see little difficulty in working this out with the Commission.

We also run into this: Sometimes we find a policyholder who wishes our policy to extend him coverage for an operation maybe across the street which you folks might not include in your definition of site. He wants this policy to cover him.

It seems to me that rather than to attempt to put this thing into a legislative straitjacket, it would be far better to direct the Commission to publish regulations or promulgate suitable regulations as to what is the site.

Representative HOSMER. Let us take the converse of that across-the-street proposition. You have a policy that is written up and defines what the site is. Subsequent to the issuance of the policy, the licensee does move a part of his operation across the street, and your policy is not amended. That does not mean that the public is going to be precluded from the $60-million coverage.

Mr. ST. CLAIR. We would amend the policy.

Representative HOSMER. I am assuming it wasn't.

Mr. ST. CLAIR. He doesn't tell us about it. He doesn't give us notice. He doesnt' give the Commission notice?

Representative HOSMER. That is right.

Mr. ST. CLAIR. What are you going to do with your indemnity? You have defined site and he moves his operation. The possibility of it happening, Mr. Hosmer, is, I think, remote. I find these licensees are very alert in reporting to us any change in location or any change in operation.

Representative HOSMER. I understand that. What you have said so far is in conflict with what I regard as the philosophy of the act to obtain under all circumstances the coverage in connection with a licensed activity, irrespective of whether or not it is carried on in the metes and bounds set forth in a particular insurance policy.

Mr. BUTLER. I don't think there is any question of coverage there.

Mr. ST. CLAIR. The question comes up, Mr. Hosmer, I think only with damage to onsite and offsite property.

Representative HOSMER. We haven't put that in the law yet.

Mr. BUTLER. It is in there now.

May I digress for a moment?

Representative PRICE. Mr. Hosmer thinks you are talking only about the suggested amendment. Are you departing from the discussion of this?

Representative HOSMER. My questions were posed in that frame of reference.

Mr. BUTLER. I was trying to explain, and I won't do it if I shouldn't, the importance of site definition to the customer.

Is that applicable or not?

Representative PRICE. That is what we are trying to determine, whether it is applicable under existing law or whether this amendment makes it applicable.

Mr. BUTLER. You have the reference to on- and off-site problems in both the existing law and in the amendment. The importance to a customer of a definition of site is that he has coverage for his own property under his liability contract and under the indemnity, if you will, if it is offsite. He does not have it if it is onsite.

So the definition of site is of pecular importance to the customer and something that he intends to keep us advised on. That is, the nature of his site.

With regard to the exposure of the public, I just cannot imagine these two pools making any effort to deny coverage because it turned out that a hot lab or something associated with the reactor was moved. He suddenly puts one up on the other side of the street. I cannot image our attempting to deny coverage for the reason that it was not defined in the original site. We are trying to stay in business.

Representative HOSMER. If you have one of these accidents, you may be out of business.

Representative PRICE (presiding). Mr. Toll, do you have any questions?

Mr. TOLL. The only question I would have would go to the other amendment as to why the insurance companies are unwilling to restore their protection to the face amount of the policy in the event they have to make a minor payout on a claim.

Mr. BUTLER. That was the second one on my list.

We are both willing and unwilling to do this. We are willing to do it when we know the nature of the loss. We do not wish to have our contracts suddenly perpetuate their original limit if a loss discloses—and I will simply use two examples that occur to a nontechnical man—an inherent defect in the reactor. The loss itself discloses something that was not foreseen. We are not going to reinstate that limit until that something has been removed.

The next situation would be, and perhaps it is a corollary to the first, where it appears as though it would be very easy for that same accident to happen again. We want some controls introduced to prevent the recurrence of this same accident.

Mr. TOLL. Mr. Price of AEC seems to think that you were worried by the total commitment of your syndicate.

Mr. BUTLER. We are.

Mr. TOLL. You indicate you are more worried about a particular reactor being one that you might have to pay out more heavily on and therefore you want to up the rate on them, I presume.

Mr. BUTLER. No. It is a combination of the two. We are only entitled to put our members on a policy to commit both pools up to a total of $60 million. That is all they have subscribed for. We can, however, reinstate a limit and that which is essentially new insurance. If we put an automatic reinstatement in there we have moved over from what is today an aggregate limit cover or a total commitment of $60 million, to what could become under interpretation by the courts an accident limit or an incident limit.

Mr. TOLL. Takng the example Mr. Hosmer gave earlier, where you had five policies out each at $60 million——

Mr. BUTLER. These are on five different reactors?

Mr. TOLL. Yes.

Mr. BUTLER. No problem.

Mr. TOLL. On one you had to pay out $10 million, but the other four policies you leave at $60 million; is that correct?

Mr. BUTLER. Yes.

Mr. TOLL. What if one has claims amounting to $60 million? Then your pool has to pay out a total of $70 million, which is beyond your resources.

Mr. BUTLER. No, it is not beyond our resources. It is hard to get a clear picture of some of these things. We are willing, and this is a calculated risk, to insure 5 or 50 or 5,000 reactors, and to place $60 million on each of them. If the five of them blow over a period of 6 months or a day or a year, or whatever it is, there will be a lot of insurance companies out of business, because we will pay our $60 million on each one. We believe when we get into the probabilities of that sort of thing we are in an extremely remote area. All of this is remote. This is in fractions of the remoteness of the rest of the hazard.

Representative PRICE. How much is the pool?

Mr. BUTLER. Forty-six five in NELIA, and thirteen-five in NAELU, or a total of 60 million, which was discussed in the earlier hearings.

Representative HOSMER. Mr. Price was telling us about this $60 million insurance and $10 million loss example, and the reason you held it down to $50 million. I thought I understood him to say, the insurance companies feel that they can be liable for another $60 million on the second deal. Actually the amount of the additional liability is only that $10 million, because your first incident cost you $10 million. Even if you carried on your full insurance and there was a second incident, it could not cost you more than $60 million additional. So you have $70 million total, and not $120 million.

Mr. BUTLER. That is true in this respect. May I cite a type of situation outside the nuclear field as an illustration.

We have a famous case in insurance circles of an oil well that blew. This oil well blew and spouted for some time. It was a matter of days before they could bring it under control. Each time the wind changed, the court held that there had been a separate accident.

If this limit reinstated itself in this policy, now turning back to nuclear, and the time that the wind blew from the east was held to be one accident, it reinstated itself after that, the time that it blew

from the southeast was held to be the next accident, and it reinstated itself after that, we could be on for multiples of $60 million and not a fraction thereof. We would lose our capacity immediately. Our members would withdraw. I would withdraw from the pool if we had to write an automatic reinstatement.

Representative HOSMER. I understand that point.

Representative PRICE. Mr. St. Clair, could you give us some idea of the extent of coverage under the combination setup? Are all projects that we know of covered? That is, under the power development program.

Mr. ST. CLAIR. I believe so. Mr. Butler could answer that better than I. We have not refused anyone coverage. Everybody who has applied for coverage has been given a binder and will shortly receive a policy.

Representative PRICE. There has been no rejection of any application for coverage?

Mr. ST. CLAIR. No.

Representative PRICE. I would imagine almost all of them made application.

Mr. BUTLER. I think, Mr. Price, that some of the universities have not bought coverage. You remember that under the amendment last year their requirement was reduced.

Representative PRICE. There was special legislation to deal with that subject.

Mr. BUTLER. Yes. I think some have elected not to buy. No one who wanted to buy is without a policy.

Representative PRICE. The reason we had special legislation for the university is because some of them would have been out of the research program entirely unless they did have this special legislation because of the State constitutions.

Does counsel have any further questions?

Mr. TOLL. Would Mr. Butler like to comment on these negotiations going on concerning the 12-hour notification that is now in the policies? As I understand it, the policy form now provides that the insurance company can shut down an operator on 12 hours' notice, or at least withdraw their insurance.

Mr. BUTLER. Those negotiations are concluded. We have moved that notification period up to the close of the next working day of the Atomic Energy Commission after they receive notice.

I would like to talk a little bit, if I am not taking too much time, about the presence of that suspension condition. We would not need a suspension condition if we planned to cancel policies lightly and if we had a short cancellation period. We have a rather long cancellation period of 90 days followed by 2 years coverage for preexisting losses. If we had a short cancellation period we would not need a suspension condition because we could just turn around and cancel. This suspension clause is to keep us from canceling policies.

We come into a place, and I know so little about reactors I would like to use a boiler as an example, and we find the safety valve capped.

We don't want to continue that insurance until the safety valve has been put back in operation. Instead of invoking cancellation, and the 2-year discovery period, thereby creating difficulty for people covered by the omnibus clause of the policy, we suspend against the

parties at fault. We are insuring a great many people. In order not to create difficulty for people who are not responsible for tying down the safety valve, we suspend against the party at fault and then lift the suspension when the valve is corrected.

In the meantime, the insurance continues to run for everyone else, and the discovery period does not run.

Representative PRICE. I notice in the statement presented by the Commission—unfortunately I was at another meeting and I was not here—attention was called to the 2-year limitation on the claim. It says:

> The proposed form of insurance policy would also provide that it applies only to bodily injury or property damage for which written claims were made against the insurer not later than 2 years after the end of the policy period.

The Commission said that they were concerned that this 2-year provision may result in exclusion from coverage of a significant portion of the insured's liability.

Can you make a comment on that?

Mr. BUTLER. I could make a dual comment on it. We submitted a letter to the Commission on that subject, and a section of it is quoted in appendix B of their report to you. I do not know that I can improve on that except to say that the insurance industry formed these pools for the purpose of staying in business. Although we recognize the need for Government indemnity, we don't recognize the need for Government indemnity at the levels at which we are competent to operate, in this case up to $60 million. The day we start issuing arbitrary cancellation notices is the day we invite you to take over the whole thing, in my opinion.

Representative PRICE. This directs itself to the adequacy of protection of a person who might be injured in such a way that might not be indicated for the period beyond 2 years.

Mr. BUTLER. If this thing is going to run into generations, as we are told it can——

Representative PRICE. We are not talking about generations. There are policies now that carry that limitation further than 2 years.

Mr. BUTLER. There is a suggestion that we take it to 10 years. There is one basis on which I would be delighted to take it to 10 years. I don't speak for all companies. I would take it to 10 years in a minute on what I understand to be the European system, which is an absolute discovery period of 10 years. We are assuming a tremendous liability so long as the policy remains in force. If this policy is kept in force, we are on forever. The European systems, all the ones I have seen, contemplate a 10-year discovery period whether the policy is in effect or not. By so doing they are relieving themselves of a teriffic load of late emergency losses if such losses are going to occur. I have no idea whether they are going to occur or not.

Representative HOSMER. In that connection, could you settle a claim for $100, that being the only claim that came out of an accident, if the period for claim were 10 years before the 10-year period expired because of the fact that there might come enough others before the 10-year period was out to exceed the $60 million?

Mr. BUTLER. I am not sure I understand your question, sir.

Representative HOSMER. How would you ever know, until the period of claim expires, whether or not you are above the limits of your

policy and therefore must pro rate among the claimants and leave the rest up to the Government?

Mr. BUTLER. I don't know the answer to that, sir. That is the kind of problem we are wrestling with. Let us say it is a gradual contamination situation where somebody has put too much waste products into a stream. If one claim emerges we don't know whether that is going to be the only one or whether there are going to be thousands later.

Representative HOSMER. That is my point. You can't start settling until the expiration of the time for filing claim, can you?

Mr. BUTLER. We have to start settling, in my opinion.

Representative HOSMER. When you do that, instead of $60 million it may turn out there is $100 million worth of settlement.

Mr. BUTLER. If this is an indemnified facility it moves over into Government indemnity for the balance. There is the further provision in the original bill which asks the courts to do that proration job. I am most grateful it is in their hands.

Representative HOSMER. The Government indemnity being on top is the only indemnity that has to worry about pro rate?

Mr. BUTLER. That is right. Mr. Thomas and Mr. St. Clair are disagreeing with me. Maybe I didn't understand your question.

Mr. ST. CLAIR. First, as I understand the proration procedure in the event of a major incident—let us say there a big power reactor—so it involved our $60 million and your $500 million, the proration applies to the whole $560 million. We don't pay over our $60 million and then turn the proration over to the court. It is not clear to me that you gentlemen understand that this is a continuous policy, and that this 2-year discovery period that you are talking about does not start to run until the policy is terminated.

I think Mr. Butler has made it very clear that we are not going to start terminating policies except under very extreme circumstances. This is a policy that has been in effect for 30 years.

As Mr. Butler points out, here is a claim that was due to exposure occurring 25 years ago. It is covered by the policy.

In Europe it would not be covered by the policies that they are using. It is covered by our policy. As long as a man keeps his policy in effect, he has coverage.

As Mr. Butler can tell you, we are willing, if he shuts down his facility, to keep his policy in effect for what appears to be a reasonable premium, and it will not be a large premium, for as long as he wants to, so his discovery period could be kept in effect for 10 years.

Representative HOSMER. But he has to pay premiums during that time.

Mr. ST. CLAIR. Yes.

Representative HOSMER. He has had a nuclear accident and he is wiped out and bankrupt and he cannot pay premiums.

Mr. BUTLER. When he is wiped out by the nuclear accident the policy will be wiped out by the expenditure of a $60 million claim.

Representative HOSMER. It wouldn't have to be the maximum.

Representative PRICE. That is right. It would not have to be the maximum case.

Mr. BUTLER. We will make arrangements to keep his policy in force if there are limits remaining. This question has come up before. I don't mean here.

Representative PRICE. It has come up with the Commission because they are the ones who are expressing a concern about it.

Mr. BUTLER. We will make arrangements with a prominent supplier who has insurance under this policy as well as the reactor operator where the supplier is not wiped out by this loss. We will make arrangements with him to keep the policy in force if he wants to.

Representative HOSMER. There is a possibility that you may not find somebody like that.

Mr. BUTLER. We might make the same arrangement with a trustee in bankruptcy.

Representative PRICE. At any rate, you have not foreclosed further consideration of this matter that the Commission has expressed concern on. It is something that you are aware of.

Mr. BUTLER. Yes, sir.

Representative PRICE. You have not given any final yes or no answer to preclude the further consideration sometime in the future?

Mr. BUTLER. No insurance contract that I am familiar with is ever in permanent condition; no, sir. They change constantly.

Representative PRICE. This involves the general liability clause.

Mr. BUTLER. Ten years from now when we know more about this we might have an entirely different type of contract. I just don't know.

Representative PRICE. We thank you, gentlemen, for your appearance here this afternoon, and your contribution to the hearing.

The committee will adjourn now until 10 o'clock tomorrow morning.

(Following is material received for the record regarding Nuclear Energy Liability Insurance Policies:)

NUCLEAR ENERGY LIABILITY INSURANCE ASSOCIATION,
New York, N.Y., May 20, 1959.

Mr. DAVID TOLL,
Counsel, Joint Committee on Atomic Energy,
Capitol Building, U.S. Senate Post Office, Washington, D.C.

DEAR MR. TOLL: Enclosed are three copies of a statement submitted jointly on behalf of the Nuclear Energy Liability Insurance Association and the Mutual Atomic Energy Liability Underwriters.

You will notice that the statement calls for the enclosure of the Nuclear Energy Liability Insurance Policy (facility form) and an "Amendment of Transportation Coverage" endorsement. Unfortunately, printed proofs of the policy and the endorsement will not be available until tomorrow or the next day. As soon as the proofs arrive, we will furnish you four copies of the attachments and three additional copies of our statement.

We enclosed the statements today in order to be certain that they are in your hands in time.

Very truly yours,

D. C. THOMAS,
Assistant General Manager.

NUCLEAR ENERGY LIABILITY INSURANCE ASSOCIATION,
New York 38, N.Y., May 21, 1959.

Mr. DAVID TOLL,
Counsel, Joint Committee on Atomic Energy,
Room F–88, Capitol Building,
U.S. Senate Post Office, Washington 25, D.C.

DEAR MR. TOLL: Enclosed are three copies of a statement submitted on behalf of the Nuclear Energy Liability Insurance Association and the Mutual Atomic Energy Liability Underwriters together with four proofs of the Nuclear Energy Liability Policy (facility form) and the "Amendment of Transportation

Coverage" endorsement referred to therein. You will remember that I had promised to furnish you with this material in my letter dated May 20, 1959.

I would like to bring to your attention the fact that the copies of the statements that we sent to you yesterday referred in several places to the "Nuclear Energy Liability Insurance Policy." Actually, the title of the NELIA-MAELU form is the "Nuclear Energy Liability Policy." The statements submitted to you today have been so corrected.

Mr. Gunn of your office has given me to understand that he needs only three copies of our formal statement plus four copies of our printed enclosures. If additional copies of our material will be helpful, we will be more than happy to furnish them.

Yours very truly,

DEROY C. THOMAS,
Assistant General Manager.

STATEMENT BY THE MUTUAL ATOMIC ENERGY LIABILITY UNDERWRITERS AND THE NUCLEAR ENERGY LIABILITY INSURANCE ASSOCIATION

Submitted to the Joint Committee on Atomic Energy in connection with hearings held on April 29 and 30, 1959, relating to operations under section 170 of the Atomic Energy Act of 1954, as amended

This statement is submitted on behalf of the Mutual Atomic Energy Liability Underwriters (MAELU) and the Nuclear Energy Liability Insurance Association (NELIA) to report the resolution of some of the problems raised during the course of the hearings on operations under section 170 of the Atomic Energy Act of 1954, as amended, and to set forth the reasoning underlying several provisions contained in the Nuclear Energy Liability Policy (facility form).

TRANSPORTATION

Article I, paragraph 3 of the proposed Commission Indemnity Agreement defines the term "in the course of transportation" to include transportation of nuclear material to and from the indemnified licensee's location. On the other hand, the Nuclear Energy Liability Policy set forth in the Commission's proposed regulations published in the Federal Register on August 28, 1958, provides for coverage for transportation of such material from the indemnified facility and for transportation coverage to the indemnified facility only where such transportation is directly from a facility owned by the Government.

Subsequent to the promulgation of the proposed regulations, in response to requests by the Commission and industry, the pools have revised the Nuclear Energy Liability Policy (facility form) so that it meshes with the transportation coverage afforded under the Commission Indemnity Agreement. An "Amendment of Transportation Coverage" endorsement will be attached to each policy issued to an indemnified nuclear facility. Such an indemnified nuclear facility will then have "from" coverage for shipments to any location and will have "to" coverage for shipments from any place other than another indemnified nuclear facility. The exception to the "to" coverage is to make certain that only one policy will cover in a shipment between two indemnified nuclear facilities.

A copy of the revised Nuclear Energy Liability Policy (facility form) and the transportation endorsement to form a part thereof when such a policy is issued to an indemnified nuclear facility are attached.

SUSPENSION

The policy published in the Federal Register on August 28, 1958, provides that a representative of the companies may, after 12 hours' notice to the Commission, suspend the insurance in respect to the named insured and any other person or organization responsible for the continuance of an unduly dangerous condition if there has been a failure to comply with a request of the representative that such condition be corrected without delay. The provision affords protection to insurers, the public and suppliers alike since it is designed to prevent operation of a facility where unreasonable risks are involved.

Both the Commission and industry have raised questions concerning this provision, and the Commission requested the pools to lengthen the period of notice to the Commission and to provide for termination of the suspension

when the unsafe condition has been corrected. Condition 2 of the revised policy attached hereto now reads:

"*Inspection; suspension.*—The companies shall be permitted to inspect the facility and to examine the insured's books and records at any time, as far as they relate to the subject matter of this insurance.

"If a representative of the companies discovers a condition which he believes to be unduly dangerous with respect to the nuclear energy hazard, a representative of the companies may request that such condition be corrected without delay. In the event of noncompliance with such request, a representative of the companies may, by notice to the named insured, to any other person or organization considered by the companies to be responsible for the continuance of such dangerous condition, and to the U.S. Atomic Energy Commission, suspend the insurance with respect to the named insured and such other person or organization effective 12 midnight of the next business day of such Commission following the date that such Commission receives such notice. The period of such suspension shall terminate as of the time stated in a written notice from the companies to the named insured and to each such person or organization that such condition has been corrected."

Any suspension will be terminated by written notice in order to fix with certainty the exact time that the suspension is lifted.

COMMON OCCURRENCE

The Commission, in the statement made to the Joint Committee, has expressed doubt that the common occurrence provision in the policy (condition 4) has the meaning intended, and particularly that it may be construed, under subparagraph (a), to be applicable to bodily injury or property damage resulting from the conflation of fission products discharged from two or more reactors as a result of separate, distinct occurrences at each such reactor. The persons responsible for the policy language did not intend any such result but, on the contrary, intended that if two reactors at different locations "blow" at or about the same time, the applicable limit of liability of each reactor's policy will be available for resulting claims, and condition 4 will not be applicable. In brief, the pools (MAELU and NELIA) intend subparagraph (a) to apply only to situations where the gradual accumulation of nuclear materials discharged or dispersed over a period of time from two or more nuclear facilities, whether in the course of their normal operation or as a result of undetected malfunction or accidental leakage of effluents. A simple illustration is the contamination of a watershed as the result of the continued operation of two or more facilities for a period of time, without the occurrence of an incident, identifiable in time, at any of the facilities.

Even if the construction of subparagraph (a) of condition 4 feared by the Commission is possible, the pools could not take advantage of it because of the settled principle of law that if a provision in an insurance policy is ambiguous, the provisions must be given the meaning most favorable to the insured.

It is submitted that the provisions of the Price-Anderson Act particularly the definition of "nuclear incident," and subsection (c) and (e) of section 170, require that with respect to Government indemnity any occurrence or series of occurrences to which the policy's common occurrence provision is applicable should be construed as one nuclear incident. Otherwise the Government would be liable, in such a situation, not for $500 million but for multiples thereof.

PROPERTY DAMAGE

Industry has questioned the definition of "property damage" contained in the policy to be used by the two pools. They point out that both the Commission indemnity agreement and the insurance policy are drafted to avoid responsibility for diminution of property values based merely on fears caused by the erection or presence of a facility nearby.

However, industry argues that the indemnity would but the policy would not cover any liability incurred as a result of damage to or loss of use of property short of actual physical damage or contamination of such property or the imminent possibility of contamination. They give as an example loss of property values resulting from contamination of the property's water supply.

The policy defines "property damage" as follows:

" 'Property damage' means physical injury to or destruction or radioactive contamination of property, and loss of use of property so injured, destroyed or con-

taminated, and loss of use of property while evacuated or withdrawn from use because possibly so contaminated or because of imminent danger of such contamination."

In our judgment it is clear that the language set forth above covers a situation where the water in a reservoir supplying a dwelling house is contaminated and in consequence the dwelling house is withdrawn from use. In such a case the dwelling house is "withdrawn from use * * * because of imminent danger of such contamination" from the offending water supply. Coverage would exist even if the contaminated water was much more dangerous to the persons occupying the dwelling than to the dwelling itself. Indeed, property is considered contaminated only when it is or may be harmful to humans.

TWO-YEAR DISCOVERY PERIOD

The Commission, as well as representatives of industry, has expressed concern over a possibility that the so-called 2-year discovery period incorporated in insuring agreement IV of the Nuclear Energy Liability Policy may result in exclusion from coverage of a significant portion of an insured's liability. Insuring agreement IV reads as follows:

"*Application of policy.*—This policy applies only to bodily injury or property damage (1) which is caused during the policy period by the nuclear energy hazard and (2) which is discovered and for which written claim is made against the insured, not later than 2 years after the end of the policy period."

The reasons why the insurance companies felt it necessary to include the above provision in nuclear energy liability policies were set forth in a letter dated January 23, 1959, to Mr. H. L. Price, Director, Division of Licensing and Regulation, U.S. Atomic Energy Commission. The pertinent parts of that letter are set forth in Appendix B, Atomic Energy Commission Report on Indemnity Act and Advisory Committee on Reactor Safeguards, April 1959.

The question of how to deal with long-delayed emergence radiation injury claims has troubled all insurers, in the United States and elsewhere, writing nuclear energy liability insurance. In Great Britain and in Western Europe insurance companies include in their policies a provision that there is no coverage for a claim for injury due to exposure more than 10 years prior to filing claim, and this is true even if the insurance is still in effect. On this point, the MAELU NELIA contract gives better coverage. The policy remains continuously in force until terminated by exhaustion of its limit of liability or until canceled by one party or the other. The 2-year discovery period never starts to run until a policy is canceled. Hence, if a policy is kept in force, it affords coverage for an injury which emerges many years after exposure.

Moreover, the purposes for which MAELU and NELIA were formed—to obviate the need for Government intervention in a field in which private insurance can operate—negative the possibility of arbitrary cancelation by the insurers. Such cancelations would be an invitation to the Federal Government to monopolize the area of nuclear energy liability insurance—an invitation which the insurance industry is not likely to extend.

We want to thank the committee for the opportunity to submit this statement and to assure them that we will continue to cooperate closely with the committee, the committee staff, the Commission and nuclear industry.

Very truly yours,

MUTUAL ATOMIC ENERGY LIABILITY UNDERWRITERS,
ASHLEY ST. CLAIR, *Counsel.*

NUCLEAR ENERGY LIABILITY INSURANCE ASSOCIATION,
J. DEWEY DORSETT, *General Manager.*

NUCLEAR ENERGY LIABILITY POLICY

(Facility form)

The undersigned members of Nuclear Energy Liability Insurance Association, hereinafter called the "companies," each for itself, severally and not jointly, and in the respective proportions hereinafter set forth, agree with the insured, named in the declarations made a part hereof, in consideration of the premium and in

reliance upon the statements in the declarations and subject to the limit of liability, exclusions, conditions and other terms of this policy:

INSURING AGREEMENTS

I

Coverage A—Bodily injury and property damage liability

To pay on behalf of the insured:

(1) all sums which the insured shall become legally obligated to pay as damages because of bodily injury or property damage caused by the nuclear energy hazard, and the companies shall defend any suit against the insured alleging such bodily injury or property damage and seeking damages which are payable under the terms of this policy; but the companies may make such investigation, negotiation and settlement of any claim or suit as they deem expedient;

(2) costs against the insured in any such suit and interest on any judgment therein;

(3) premiums on appeal bonds and on bonds to release attachments in any such suit, but without obligation to apply for or furnish such bonds;

(4) reasonable expenses, other than loss of earnings, incurred by the insured at the companies' request.

Coverage B—Damage to property of an insured away from the facility

With respect to property damage caused by the nuclear energy hazard to property of an insured which is away from the facility, to pay to such insured those sums which such insured would have been legally obligated to pay as damages therefor, had such property belonged to another.

Coverage C—Subrogation—Offsite employees

With respect to bodily injury sustained by any employee of an insured and caused by the nuclear energy hazard, to pay to the workmen's compensation carrier of such insured all sums which such carrier would have been entitled to recover and retain as damages from another person or organization, had such person or organization alone been legally responsible for such bodily injury, by reason of the rights acquired by subrogation by the payment of the benefits required of such carrier under the applicable workmen's compensation or occupational disease law. An employer who is a duly qualified self-insurer under such law shall be deemed to be a workmen's compensation carrier within the meaning of this coverage. This Coverage C does not apply to bodily injury sustained by any person who is employed at and in connection with the facility.

This Coverage C shall not constitute workmen's compensation insurance as required under the laws of any state.

II

Definition of insured

The unqualified word "insured" includes (a) the named insured and (b) any other person or organization with respect to his legal responsibility for damages because of bodily injury or property damage caused by the nuclear energy hazard.

Subdivision (b) above does not include as an insured the United States of America or any of its agencies.

Subject to Condition 3 and the other provisoions of this policy, the insurance applies separately to each insured against whom claim is made or suit is brought.

III

Definitions

Wherever used in this policy:

"*Bodily injury*" means bodily injury, sickness or disease, including death resulting therefrom, sustained by any person;

"*Property damage*" means physical injury to or destruction or radioactive contamination of property, and loss of use of property so injured, destroyed or contaminated, and loss of use of property while evacuated or withdrawn from use because possibly so contaminated or because of imminent danger of such contamination;

"*Nuclear material*" means source material, special nuclear material or by-product material;

"*Source material*," "*special nuclear material*," and "*byproduct material*" have the meanings given them in the Atomic Energy Act of 1954, or in any law amendatory thereof;

"*Spent fuel*" means any fuel element or fuel component, solid or liquid, which has been used or exposed to radiation in any nuclear reactor;

"*Waste*" means any waste material (1) containing byproduct material and (2) resulting from the operation by any person or organization of any nuclear facility included within the definition of nuclear facility under paragraph (1) or (2) thereof;

"*The facility*" means the facility described in the declarations and includes the location designated in Item 3 of the declarations and all property and operations at such location;

"*Nuclear facility*" means "the facility" as defined in any Nuclear Energy Liability Policy (Facility Form) issued by the companies or by Mutual Atomic Energy Liability Underwriters. The term "nuclear facility" also means

(1) Any nuclear reactor,

(2) Any equipment or device designed or used for (a) separating the isotopes of uranium or plutonium, (b) processing or utilizing spent fuel, or (c) handling, processing or packaging waste,

(3) Any equipment or device used for the processing, fabricating or alloying of special nuclear material if at any time the total amount of such material in the custody of the insured at the premises where such equipment or device is located consists of or contains more than 25 grams of plutonium or uranium 233 or any combination thereof, or more than 250 grams of uranium 235,

(4) Any structure, basin, excavation, premises or place prepared or used for the storage or disposal of waste,

and includes the site on which any of the foregoing is located, all operations conducted on such site and all premises used for such operations;

"*Indemnified nuclear facility*" means

(1) "The facility" as defined in any Nuclear Energy Liability Policy (Facility Form) issued by the companies or by Mutual Atomic Energy Liability Underwriters, or

(2) Any other nuclear facility,

if financial protection is required pursuant to the Atomic Energy Act of 1954, or any law amendatory thereof, with respect to any activities or operations conducted thereat;

"*Nuclear reactor*" means any apparatus designed or used to sustain nuclear fission in a self-supporting chain reaction or to contain a critical mass of fissionable material;

"*Nuclear energy hazard*" means the radioactive, toxic, explosive or other hazardous properties of nuclear material, but only if

(1) The nuclear material is at the facility or has been discharged or dispersed therefrom without intent to relinquish possession or custody thereof to any person or organization, or

(2) The nuclear material is in an insured shipment which is (a) in the course of transportation, including handling and temporary storage incidental thereto, within the territorial limits of the United States of America, its territories or possessions, Puerto Rico or the Canal Zone and (b) away from any other nuclear facility;

"*Insured shipment*" means a shipment of source material, special nuclear material, spent fuel or waste, herein called "material," (1) to the facility from a nuclear facility owned by the United States of America, but only if the transportation of the material is not by predetermination to be interrupted by the removal of the material from a transporting conveyance for any purpose other than the continuation of its transportation, or (2) from the facility to any other location except an indemnified nuclear facility, but only until the material is removed from a transporting conveyance for any purpose other than the continuation of its transportation.

Application of policy

This policy applies only to bodily injury or property damage (1) which is caused during the policy period by the nuclear energy hazard and (2) which is discovered and for which written claim is made against the insured, not later than two years after the end of the policy period.

EXCLUSIONS

This policy does not apply:

(a) To any obligation for which the insured or any carrier as his insurer may be held liable under any workmen's compensation, unemployment compensation or disability benefits law, or under any similar law;

(b) Except with respect to liability of another assumed by the insured under contract, to bodily injury to any employee of the insured arising out of and in the course of his employment by the insured; but this exclusion does not apply to bodily injury to any person who is not employed at and in connection with the facility if the insured has complied with the requirements of the applicable workmen's compensation or occupational disease law respecting the securing of compensation benefits thereunder to his employees;

(c) To liability assumed by the insured under contract, other than an assumption in a contract with another of the liability of any person or organization which would be imposed by law on such person or organization in the absence of an express assumption of liability;

(d) To bodily injury or property damage due to the manufacturing, handling or use at the location designated in Item 3 of the declarations, in time of peace or war, of any nuclear weapon or other instrument of war utilizing special nuclear material or byproduct material;

(e) To bodily injury or property damage due to war, whether or not declared, civil war, insurrection, rebellion or revolution, or to any act or condition incident to any of the foregoing;

(f) To property damage to any property at the location designated in Item 3 of the declarations, other than aircraft, watercraft or vehicles licensed for highway use, provided such aircraft, watercraft or vehicles are not used in connection with the operation of the facility;

(g) To property damage to nuclear material in the course of transportation to or from the facility including handling or storage incidental thereto;

(h) Under Coverage B, to property damage due to neglect of the insured to use all reasonable means to save and preserve the property after knowledge of the occurrence resulting in such property damage.

CONDITIONS

1. *Premium.*—The named insured shall pay the companies the advance premium stated in the declarations, for the period from the effective date of this policy through December 31 following. Thereafter, at the beginning of each calendar year while this policy is in force, the named insured shall pay the advance premium for such year to the companies. The advance premium for each calendar year shall be stated in a written notice given by the companies to the named insured as soon as practicable prior to or after the beginning of such year.

Such advance premiums are estimated premiums only. As soon as practicable after each December 31 and after the termination of this policy, the earned premium for the preceding premium period shall be computed in accordance with the companies' rules, rates, rating plans, premiums and minimum premiums applicable to this insurance. If the earned premium thus computed for any premium period exceeds the advance premium previously paid for such period, the insured shall pay the excess to the companies; if less, the companies shall return to the insured the unearned portion paid by the insured.

The named insured shall maintain records of the information necessary for premium computation and shall send copies of such records to the companies as directed, at the end of each calendar year, at the end of the policy period and at such other times during the policy period as the companies may direct.

2. *Inspection; suspension.*—The companies shall be permitted to inspect the facility and to examine the insured's books and records at any time, as far as they relate to the subject matter of this insurance.

If a representative of the companies discovers a condition which he believes to be unduly dangerous with respect to the nuclear energy hazard, a representative of the companies may request that such condition be corrected without delay. In the event of non-compliance with such request, a representative of the companies may, by notice to the named insured, to any other person or organization considered by the companies to be responsible for the continuance of such dangerous condition, and to the United States Atomic Energy Commission, suspend the insurance with respect to the named insured and such other person or organization effective 12:00 midnight of the next business day of such Commission

following the date that such Commission receives such notice. The period of such suspension shall terminate as of the time stated in a written notice from the companies to the named insured and to each such person or organization that such condition has been corrected.

3. *Limit of liability; termination of policy upon exhaustion of limit.*—Regardless of the number of persons and organizations who are insureds under this policy, and regardless of the number of claims made and suits brought against any or all insureds because of one or more occurrences resulting in bodily injury or property damage caused during the policy period by the nuclear energy hazard, the limit of the companies' liability stated in the declarations is the total liability of the companies for their obligations under this policy and the expenses incurred by the companies in connection with such obligations, including—

(a) Payments in settlement of claims and in satisfaction of judgments against the insureds for damages because of bodily injury or property damage, payments made under parts (2), (3), and (4) of Coverage A and payments made in settlement of claims under Coverages B and C;

(b) Payments for expenses incurred in the investigation, negotiation, settlement and defense of any claim or suit, including, but not limited to, the cost of such services by salaried employees of the companies, fees and expenses of independent adjusters, attorneys' fees and disbursements, expenses for expert testimony, inspection and appraisal of property, examination, X-ray or autopsy or medical expenses of any kind;

(c) Payments for expenses incurred by the companies in investigating an occurrence resulting in bodily injury or property damage or in minimizing its effects.

Each payment made by the companies in discharge of their obligations under this policy or for expenses incurred in connection with such obligations shall reduce by the amount of such payment the limit of the companies' liability under this policy.

If, during the policy period or subsequent thereto, the total of such payments made by the companies shall exhaust the limit of the companies' liability under this policy, all liability and obligations of the companies under this policy shall thereupon terminate and shall be conclusively presumed to have been discharged. This policy, if not theretofore canceled, shall thereupon automatically terminate.

Regardless of the number of years this policy shall continue in force and the number of premiums which shall be payable or paid, the limit of the companies' liability stated in the declarations shall not be cumulative from year to year.

4. *Limitation of liability; common occurrence.*—Any occurrence or series of occurrences resulting in bodily injury or property damage arising out of the radioactive, toxic, explosive or other hazardous properties of—

(a) Nuclear material discharged or dispersed from the facility over a period of days, weeks, months or longer and also arising out of such properties of other nuclear material so discharged or dispersed from one or more other nuclear facilities insured by the companies under a Nuclear Energy Liability Policy (Facility Form), or

(b) Source material, special nuclear material, spent fuel or waste in the course of transportation for which insurance is afforded under this policy and also arising out of such properties of other source material, special nuclear material, spent fuel or waste in the course of transportation for which insurance is afforded under one or more other Nuclear Energy Liability Polices (Facility Form) issued by the companies,

shall be deemed to be a common occurrence resulting in bodily injury or property damage caused by the nuclear energy hazard.

With respect to such bodily injury and property damage (1) the total aggregate liability of the companies under all Nuclear Energy Liability Policies (Facility Form) including this policy, applicable to such common occurrence shall be the sum of the limits of liability of all such policies, the limit of liabilty of each such policy being as determined by Condition 3 thereof, but in no event shall such total aggregate liability of the companies exceed $46,500,000; (2) the total liability of the companies under this policy shall not exceed that proportion of the total aggregate liability of the companies, as stated in clause (1) above, which (a) the limit of liability of this policy, as determined by Condition 3, bears to (b) the sum of the limits of liability of all such policies issued by the companies, the limit of liability of each such policy being as determined by Condition 3, thereof.

The provisions of this condition shall not operate to increase the limit of the companies' liability under this policy.

5. *Notice of occurrence, claim or suit.*—In the event of bodily injury or property damage to which this policy applies or of an occurrence which may give rise to claims therefor, written notice containing particulars sufficient to identify the insured and also reasonably obtainable information with respect to the time, place and circumstances thereof, and the names and addresses of the injured and of available witnesses, shall be given by or for the insured to Nuclear Energy Liability Insurance Association or the companies as soon as practicable. If claim is made or suit is brought against the insured, he shall immediately forward to Nuclear Energy Liability Insurance Association or the companies every demand, notice, summons or other process received by him or his representative.

6. *Assistance and cooperation of the insured.*—The insured shall cooperate with the companies and, upon the companies' request, attend hearings and trials and assist in making settlements, securing and giving evidence, obtaining the attendance of witnesses and in the conduct of any legal proceedings in connection with the subject matter of this insurance. The insured shall not, except at his own cost, make any payment, assume any obligation or incur any expense.

7. *Action against companies—Coverages A and C.*—No action shall lie against the companies or any of them unless, as a condition precedent thereto, the insured shall have fully complied with all the terms of this policy, nor until the amount of the insured's obligation to pay shall have been finally determined either by judgment against the insured after actual trial or by written agreement of the insured, the claimant and the companies.

Any person or organization or the legal representative thereof who has secured such judgment or written agreement shall thereafter by entitled to recover under this policy to the extent of the insurance afforded by this policy. No person or organization shall have any right under this policy to join the companies or any of them as parties to any action against the insured to determine the insured's liability, nor shall the companies or any of them be impleaded by the insured or his legal representative. Bankruptcy or insolvency of the insured or of the insured's estate shall not relieve the companies of any of their obligations hereunder.

8. *Action against companies—Coverage B.*—No suit or action on this policy for the recovery of any claim for property damage to which Coverage B applies shall be sustainable in any court of law or equity unless all the requirements of this policy shall have been complied with and unless commenced within two years after the occurrence resulting in such property damage.

9. *Insured's duties when loss occurs—Coverage B.*—In the event of property damage to which Coverage B applies, the insured shall furnish a complete iuventory of the property damage claimed, showing in detail the amount thereof. Within ninety-one days after the occurrence resulting in such property damage, unless such time is extended in writing by the companies, the insured shall render to the companies a proof of loss, signed and sworn to by the insured, stating the knowledge and belief of the insured as to the following: identification of such occurrence; the interest of the insured in the property destroyed or damaged, and the amount of each item of property damage claimed; all encumbrances on such property; and all other contracts of insurance, whether valid or not, covering any of such property. The insured shall include in the proof of loss a copy of all descriptions and schedules in all policies. Upon the companies' request, the insured shall furnish verified plans and specifications of any such property. The insured, as often as may be reasonably required, shall exhibit to any person designated by the companies any of such property, and submit to examinations under oath by any person named by the companies and subscribe the same; and, as often as may be reasonably required, shall produce for examination all books of account, records, bills, invoices and other vouchers, or certified copies thereof if originals be lost, at such reasonable time and place as may be designated by the companies or their representatives, and shall permit extracts and copies thereof to be made.

10. *Appraisal—Coverage B.*—In case the insured and the companies shall fail to agree as to the amount of property damage, then, on the written demand of either, each shall select a competent and disinterested appraiser and notify the other of the appraiser selected within twenty days of such demand. The appraisers shall first select a competent and disinterested umpire and, failing for fifteen days to agree upon such umpire, then, on request of the insured or the companies, such umpire shall be selected by a judge of a court of record

in the state in which the property is located. The appraisers shall then appraise each item of property damage and, failing to agree, shall submit their differences only to the umpire. An award in writing, so itemized, of any two when filed with the companies shall determine the amount of property damage. Each appraiser shall be paid by the party selecting him and the expenses of the appraisal and umpire shall be paid by the parties equally. The companies shall not be held to have waived any of their rights by any act relating to appraisal.

11. *Subrogation.*—In the event of any payment under this policy, the companies shall be subrogated to all the insured's rights of recovery therefor against any person or organization, and the insured shall execute and deliver instruments and papers and do whatever else is necessary to secure such rights. Prior to knowledge of bodily injury or property damage caused by the nuclear energy hazard the insured may waive in writing any right of recovery against any person or organizaton, but after such knowledge the insured shall not waive or otherwise prejudice any such right of recovery.

The companies hereby waive any rights of subrogation acquired against the United States of America or any of its agencies by reason of any payment under this policy.

The companies do not relinquish, by the foregoing provisions, any right to restitution from the insured out of any recoveries made by the insured on account of a loss covered by this policy of any amounts to which the companies would be entitled had such provisions, or any of them, not been included in this policy.

12. *Other insurance.*—If the insurance afforded by this policy for loss or expense is concurrent with insurance afforded for such loss or expense by a Nuclear Energy Liability Policy (Facility Form) issued to the named insured by Mutual Atomic Energy Liability Underwriters, hereinafter called "concurrent insurance," the companies shall not be liable under this policy for a greater proportion of such loss or expense than the limit of liability stated in the declarations of this policy bears to the sum of such limit and the limit of liability stated in the declarations of such concurrent policy.

If the insured has other valid and collectible insurance (other than such concurrent insurance or any other nuclear energy liability insurance issued by the companies or Mutual Atomic Energy Liability Underwriters to any person or organization) applicable to loss or expense covered by this policy, the insurance afforded by this policy shall be excess insurance over such other insurance; provided, with respect to any person who is not employed at and in connection with the facility, such insurance as is afforded by this policy for bodily injury to an employee of the insured arising out of and in the course of his employment shall be primary insurance under such other insurance.

13. *Changes.*—Notice to any agent or knowledge possessed by any agent or by any other person shall not effect a waiver or a change in any part of this policy or estop the companies from asserting any right under the terms of this policy; nor shall the terms of this policy be waived or changed, except by endorsement issued to form a part of this policy executed by Nuclear Energy Liability Insurance Association on behalf of the companies.

14. *Assignment.*—Assignment of interest by the named insured shall not bind the companies until their consent is endorsed hereon; if, however, the named insured shall die or be declared bankrupt or insolvent, this policy shall cover such insured's legal representative, receiver or trustee as an insured under this policy, but only with respect to his liability as such, and then only provided written notice of his appointment as legal representative, receiver or trustee is given to the companies within ten days after such appointment.

15. *Cancelation.*—This policy may be canceled by the named insured by mailing to the compaines and the United States Atomic Energy Commission written notice stating when, not less than thirty days thereafter, such cancelation shall be effective. This policy may be canceled by the companies by mailing to the named insured at the address shown in this policy and to the United States Atomic Energy Commission written notice stating when, not less than ninety days thereafter, such cancelation shall be effective; provided in the event of non-payment of premium or if the operator of the facility, as designated in the declarations, is replaced by another person or organization, this policy may be canceled by the companies by mailing to the named insured at the address shown in this policy and to the United States Atomic Energy Commission written notice stating when, not less than thirty days thereafter, such cancelation shall be effective. The mailing of notice as aforesaid shall be sufficient proof of

notice. The effective date and hour of cancelation stated in the notice shall become the end of the policy period. Delivery of such written notice either by the named insured or by the companies shall be equivalent to mailing.

Upon termination or cancelation of this policy, other than as of the end of December 31 in any year, the earned premium for the period this policy has been in force since the preceding December 31 shall be computed in accordance with the following provisions:

(a) If this policy is terminated, pursuant to Condition 3, by reason of the exhaustion of the limit of the companies' liability, all premium theretofore paid or payable shall be fully earned;

(b) If the named insured cancels, the earned premium for such period shall be computed in accordance with the customary annual short rate table and procedure, provided if the named insured cancels after knowledge of bodily injury or property damage caused by the nuclear energy hazard, all premiums theretofore paid or payable shall be fully earned;

(c) If the companies cancel, the earned premium for such period shall be computed pro rata.

Premium adjustment, if any, may be made either at the time cancelation is effected or as soon as practicable after cancelation becomes effective, but payment or tender of unearned premium is not a condition of cancelation.

16. *Company representation.*—

(a) Any notice, sworn statement or proof of loss which may be required by the provisions of this policy may be given to any one of the companies, and such notice, statement or proof of loss so given shall be valid and binding as to all companies.

(b) In any action or suit against the companies, service of process may be made on any one of them, and such service shall be deemed valid and binding service on all companies.

(c) Nuclear Energy Liability Insurance Association is the agent of the companies with respect to all matters pertaining to this insurance. All notices or other communications required by this policy to be given to the companies may be given to such agent, at its office at 60 John Street, New York 38, New York with the same force and effect as if given directly to the companies. Any requests, demands or agreements made by such agent shall be deemed to have been made directly by the companies.

17. *Authorization of named insured.*—Except with respect to compliance with the obligations imposed on the insured by Conditions 5, 6, 7, 8, 9, 10 and 11 of this policy, the named insured is authorized to act for every other insured in all matters pertaining to this insurance.

18. *Changes in subscribing companies and in their proportionate liability.*—By acceptance of this policy the named insured agrees that the members of Nuclear Energy Liability Insurance Association liable under this policy, and the proportionate liability of each such member, may change from year to year, and further agrees that regardless of such changes:

(1) Each company subscribing this policy upon its issuance shall be liable only for its stated proportion of any obligation assumed or expense incurred under this policy because of bodily injury or property damage caused, during the period from the effective date of this policy to the close of December 31 next following, by the nuclear energy hazard; for each subsequent calendar year, beginning January 1 next following the effective date of this policy, the subscribing companies and the proportionate liability of each such company shall be stated in an endorsement issued to form a part of this policy, duly executed and attested by the General Manager of Nuclear Energy Liability Insurance Association on behalf of each such company, and mailed or delivered to the named insured;

(2) This policy shall remain continuously in effect from the effective date stated in the declarations until terminated in accordance with Condition 3 or Condition 15;

(3) Neither the liability of any company nor the limit of liability stated in the declarations shall be cumulative from year to year.

19. *Declarations.*—By acceptance of this policy the named insured agrees that the statements in the declarations are the agreements and representations of the name insured, that this policy is issued in reliance upon the truth of such representations and that this policy embodies all agreements between the named insured and the companies or any of their agents relating to this insurance.

IN WITNESS WHEREOF, each of the subscribing companies has caused this policy to be executed and attested on its behalf by the General Manager of Nuclear Energy Liability Insurance Association and duly countersigned on the declarations page by and authorized representative.

For the subscribing companies:

By A. R. LUEDECKE,
General Manager.

Subscribing companies:	Proportion of 100 percent
_____	_____
_____	_____
_____	_____

NUCLEAR ENERGY LIABILITY INSURANCE ASSOCIATION
60 John Street, New York 38, New York

Nuclear Energy Liability Policy No._____
(Facility Form)

DECLARATIONS

Item 1. Named Insured_____
Address_____
(No.) Street Town or City State

Item 2. Policy Period: Beginning at 12:01 A.M. on the_____day of_____, 19____, and continuing through the effective date of the cancellation of this policy, standard time at the address of the named insured as stated herein.

Item 3. Description of the Facility:
Location _____
_____
Type_____
_____
The Operator of the facility is_____

Item 4. The limit of the companies' liability is $_____ subject to all the terms of this policy having reference thereto.

Item 5. Advance Premium $_____.

Item 6. These declarations and the schedules forming a part hereof give a complete description of the facility, insofar as it relates to the nuclear energy hazard, except as noted_____
_____

Countersigned_____, 19____, at_____

By _____,
Authorized Representative.

Nuclear Energy Liability Policy (Facility Form) 2/1/57 (Second Revision)

NUCLEAR ENERGY LIABILITY POLICY (FACILITY FORM)

AMENDMENT OF TRANSPORTATION COVERAGE
(Indemnified Nuclear Facility)

It is agreed that the definition of "insured shipment" in Insuring Agreement III is amended to read:

"*insured shipment*" means a shipment of source material, special nuclear material, spent fuel or waste, herein called "material," (1) to the facility from any location except an indemnified nucelar facility, but only if the transportation of the material is not by predetermination to be interrupted by removal of the material from a transporting conveyance for any purpose other than the continuation of its transportation, or (2) from the facility to any other location, but only until the material is removed from a transporting conveyance for any purpose other than the continuation of its transportation."

Nuclear Energy Liability Policy (Facility Form) 2/1/57 (Second Revision)

U.N. ATOMIC ENERGY COMMISSION,
Washington, D.C., May 21, 1959.

MR. DAVID R. TOLL,
Staff Counsel, Joint Committee on Atomic Energy,
Congress of the United States.

DEAR MR. TOLL: In the report submitted to the Joint Committee on Atomic Energy by the Atomic Energy Commission on March 31, 1959, regarding operations under section 170 of the Atomic Energy Act of 1954, as amended, the following statement appears:

"It should be noted, however, that liability of licensees under section 53e(8), whatever its scope, is within the coverage of the syndicates' nuclear energy liability insurance policies."

I have received a letter from counsel for the Liberty Mutual Insurance Co. suggesting that this statement, which appears at the bottom of page 6 of the joint committee print, should have been qualified. Mr. St. Clair has pointed out in his letter that the limits on policy coverage, including the policy exclusions, apply to the policy coverage of licensees' liability under subsection 53e(8).

Although we do not think that the quoted statement will be read as suggesting that there is broader coverage under the policies for licensees' liability under subsection 53e(8) than in other situations, we thought it desirable to bring this point to your attention in view of Mr. St. Clair's suggestion.

Sincerely yours,

H. L. PRICE,
Director, Division of Licensing and Regulation.

LIBERTY MUTUAL INSURANCE CO.,
Boston, Mass., April 17, 1959.

Re: AEC Report to the Joint Committee on Atomic Energy on Operations under section 170 of the Atomic Energy Act Nuclear Energy Liability Insurance.

MR. HAROLD L. PRICE,
Director, Division of Civilian Application,
U.S. Atomic Energy Commission,
Washington, D.C.

DEAR MR. PRICE: Thank you very much for sending me a copy of the above report. I have read it with much interest and will read it again before the hearings on Wednesday.

There is one statement in the report which requires correction, or perhaps I should say qualification. On page 6 at the end of the discussion of section 53e(8) of the act the following statement appears:

"It should be noted, however, that liability of licensees under section 53e(8), whatever its scope, is within the coverage of the syndicates' nuclear energy liability insurance policies."

The nuclear energy liability insurance policy is a "legal liability" policy and covers only an insured's liability for damages because of bodily injury or property damage, as defined in the policy, caused by the nuclear energy hazard.

Because whatever liability may be imposed on a licensee by Section 53e(8) is a "liability imposed by law," exclusion (c), the contractual liability exclusion, does not touch it. The coverage given a licensee for his liability under section 53e(8) is restricted to his liability for damages because of bodily injury or property damage and is subject to the several policy exclusions. To illustrate, exclusion (f) rules out coverage for property damage to any property at the location of the facility and hence if an owner of such property recovered damages from the United States because it was injured or destroyed, the policy would not cover any liability of the licensee to reimburse the United States under section 53e(8).

I am calling this matter to your attention because I thought it likely that you might wish some member of the Commission staff to clarify it and thereby relieve insurance company representatives of the necessity of calling it to the attention of the Joint Committee.

Sincerely yours,

A. ST. CLAIR, *Counsel.*

(Whereupon, at 4:10 p.m., Wednesday, April 29, 1959, the Joint Committee recessed, to reconvene at 10 a.m., Thursday, April 30, 1959.)

INDEMNITY AND REACTOR SAFETY

THURSDAY, APRIL 30, 1959

CONGRESS OF THE UNITED STATES,
JOINT COMMITTEE ON ATOMIC ENERGY,
Washington, D.C.

The Joint Committee met, pursuant to recess, at 10 a.m. in room P–63, the Capitol, Representative Carl T. Durham, vice chairman of the Joint Committee, presiding.

Present: Representatives Durham, Holifield, Hosmer, and Bates, and Senators Anderson and Dworshak.

Also present: Messrs. David R. Toll, staff counsel, and Edward J. Bauser, technical adviser, Joint Committee on Atomic Energy.

Representative DURHAM. The committee will come to order.

This is a continuation of hearings of yesterday afternoon on matters of indemnity and reactor safety. The first witness this morning is Richard P. Godwin, Assistant Director, Division of Reactor Development, and then Clark C. Vogel, Deputy Director, Division of International Affairs (Foreign Indemnity), Atomic Energy Commission.

You may proceed, Mr. Godwin.

STATEMENTS OF RICHARD G. GODWIN, ASSISTANT DIRECTOR, DIVISION OF REACTOR DEVELOPMENT (MARITIME INDEMNITY PROBLEMS); AND JOSEPH HENNESSEY, OFFICE OF THE GENERAL COUNSEL, ATOMIC ENERGY COMMISSION

Mr. GODWIN. My name is Richard Godwin. Mr. Joseph Hennessey, of the General Counsel's Office of the AEC, is with me.

Representative DURHAM. You may proceed.

Mr. GODWIN. Maritime indemnity problems. Certainly one of the more complex and time-consuming portions of the Commission's indemnity program is that associated with the international operation of merchant ships.

With reference to indemnity problems associated with operation of the NS *Savannah*, Public Law 85–602 extended section 170 of the Atomic Energy Act to permit the Commission to enter into agreements of indemnification with persons engaged in the design, development, construction, operation and repair of the *Savannah* which would indemnify such persons and others indemnified against legal liability arising from a nuclear incident.

Since early 1957, the Commission and the Maritime Administration have worked closely with the underwriters, principally through the American Institute of Marine Underwriters and NELIA, on a basis

under which we can secure insurance of the NS *Savannah* in order to establish a pattern for future privately owned nuclear ships. Of principal concern to insurance underwriters is the pyramiding of liability and the effect of a possible modification of the admiralty concept of limited liability.

In recognition of the fact that the United States cannot unilaterally resolve the maritime indemnity problems, a joint task group composed of AEC and Maritime officials is at work to identify and recommend solutions to the legal, insurance and liability problems of the *Savannah* and subsequent nuclear ships.

Only the *Savannah* was covered by Public Law 85–602, and it was specifically noted in the report of the JCAE that Public Law 85–602 was not necessarily to be considered a precedent for later merchant ships.

This task group will also seek an approach to international arrangements to facilitate acceptable indemnity provisions for nuclear ships within existing international agreements or, if necessary, seek resolution of these problems through new arrangements.

International interest in third-party liability has been shown by the association of maritime lawyers, known as the Comite Maritime International, and several national maritime law associations of Western Europe. The urgent problems here are the possibility of establishing absolute liability for nuclear damage and the establishment of a reasonable limit of indemnification on the part of underwriters and their respective governments.

Some pattern has been set for action on nuclear ship liability and indemnity amendments by the action of the OEEC with respect to land-based installations and the transportation of nuclear materials.

That, Mr. Chairman, concludes my prepared remarks.

Representative DURHAM. Are the insurance and indemnity arrangements made for the *Savannah* satisfactory?

Mr. GODWIN. I assume you are talking about private insurance for the *Savannah*?

Representative DURHAM. Yes.

Mr. GODWIN. We have not worked out arrangements for the *Savannah* for private insurance at the present time. We are working with the Marine Underwriters to arrive at some pattern for insurance for nuclear ships. We have not arrived at a solution at the present time.

Representative DURHAM. When you do that, you will have a pattern for your future merchant ships. Isn't that the idea?

Mr. GODWIN. That is correct. First we desire to set some kind of pattern for the future. Secondly, it is planned that the *Savannah* itself, in maybe 2 or 3 years, when the ship has been sufficiently tested, will become a licensed facility to the Maritime Administration.

Representative DURHAM. Probably my question to begin with should have been rephrased on the basis that the progress you are making in this field of insuring the NS *Savannah* is satisfactory, or have you had obstacles in the way?

Mr. GODWIN. No. I think the present legislation has proved to be quite adequate from what we know at the present time.

Representative DURHAM. That answers my question, then.

What action is being considered in connection with future nuclear-powered merchant ships. Have you taken any action on exploring the field for the future?

Mr. GODWIN. You are speaking of projects to build additional ships?

Representative DURHAM. Yes.

Mr. GODWIN. At the present time, as you know, the Commission is involved in several development projects to bring into being advanced nuclear powerplants for merchant ships. These are more economic powerplants. There is no plan in being at the present time for a second ship.

Representative DURHAM. I am not as familiar with it as you are, probably, but it seems to me that we should have a pretty definite pattern laid down because the operation of these ships will have to be done by the United States or somebody else. You cannot operate a nuclear ship without insurance.

Mr. GODWIN. That is correct. Normally, Government-owned conventionally powered ships such as the *Savannah* would not have private insurance. They would be self-insured. The *Savannah* is being used for the purpose of establishing a precedent. By applying insurance to the *Savannah* where we would not normally, we expect to get this experience.

Representative DURHAM. For example, if the Standard Oil Co. built a fleet of nuclear-powered tankers, they would face a different situation than the Government.

Mr. GODWIN. That is correct, at the present time.

Representative DURHAM. Should any provisions with regard to liability be modified in connection with nuclear-power merchant ships?

Mr. GODWIN. At the present time we are not in a position to recommend any modifications to the legislation. I think there are several problems that are coming to light, one of which is whether or not any official of the Government can automatically waive the U.S. right to the limitation of liability for merchant ships. The limitation of liability for conventional merchant ships at the present time is the value of the ship, even though the *Savannah* legislation, under the Atomic Energy Act, now would seem to raise this limitation to $500 million. There is a question in this area upon which we will hopefully have some recommendations later in the year.

Representative DURHAM. There has been no decision made by the lawyers as to the legality of that as yet; is that correct?

Mr. GODWIN. That is correct.

Representative DURHAM. Have you made any efforts at all with regard to negotiations with foreign countries on this problem?

Mr. GODWIN. On the problem of indemnity?

Representative DURHAM. Yes.

Mr. GODWIN. We have had several discussions through different channels. One of these was the work which took place early this spring where American representatives sat in on the Comite Maritime International discussions. They were drawing draft language concerning the transportation of radioactive materials. These talks were increased in scope to include discussions of indemnity problems for merchant ships. Nothing concrete came out of this particular

session except that these countries are now working on the problem to come up with some kind of language which would appear to satisfy all of them.

Representative DURHAM. You think they are working on it and trying to do something about it?

Mr. GODWIN. Yes. We also are actively engaged in it. We have held informal discussions with the United Kingdom on the same basis. These discussions will be carried further later this month.

Representative DURHAM. I hope they move a little faster in this field than they moved in the field of reactors on land. We have not made much progress so far on working out the indemnity and insurance problem.

Mr. GODWIN. This is a very complex problem and I think we all recognize it. We need the year or two we have prior to the entrance of the *Savannah* into service.

Representative HOSMER. Does anybody in the AEC or the Maritime Commission have any firm ideas as to what should be the maritime law in connection with nuclear ships?

Mr. GODWIN. You are speaking again of the indemnity problem?

Representative HOSMER. Yes.

Mr. GODWIN. I think at the present time there is no firm position in either the AEC or the Maritime Administration on the need for either additional legislation or modification of the present laws. Mr. Hennessey may have ideas on this particular subject.

Mr. HENNESSEY. We have formed this joint task group composed of Maritime Administration attorneys and AEC attorneys. The first problem in this field that has been identified as a major problem is the limitation of liability. Of course, under the Price-Anderson Act, the limitation of liability has not been increased even as to the *Savannah* to $500 million.

The Price-Anderson provisions would apply only to the extent that the shipowner is legally liable under existing law and under the Limitation of Liability Act the Maritime Administration, as shipowner, would have the advantage of that limitation of liability.

It seems likely that if the *Savannah* is going to be introduced into foreign jurisdictions——

Representative HOSMER. Are you a maritime lawyer?

Mr. HENNESSEY. No, sir; I am with the Atomic Energy Commission.

Representative HOSMER. If you know, what is the situation where you have a ship with an inherently dangerous cargo in a port? Is the liability still limited to the value of the vessel?

Mr. HENNESSEY. It is my understanding that if the shipowner knows of a condition on a ship that is hazardous that he no longer has the advantage of the limitation of liability.

Representative HOSMER. Obviously, the maritime nations are going to have to come to some common agreements on this subject, are they not?

Mr. HENNESSEY. I think it will be necessary.

Representative HOSMER. And the time is coming closer is it not?

Mr. HENNESSEY. I think that steps are going along toward reaching some understandings at the international level. I have not participated in them myself.

Representative HOSMER. The Comite Maritime International has been mentioned as going into the general problem and no further; is that right?

Mr. HENNESSEY. I think Mr. Godwin is more familiar with the activity at that level.

Mr. GODWIN. There are two considerations. One is the fact that we do have the *Savannah* which we are talking about specifically with other countries. This is a public vessel. This is a vessel owned by the U.S. Government. Our position with respect to our liability on the *Savannah* has been stated in public via the modifications to the Atomic Energy Act.

The second longer range consideration, and the one that we are discussing with the Comite deals with nuclear merchant ships which might be built privately or by any country. This deals with the limitation of liability and the other questions which would require international resolution, such as absolute liability which would bother all countries.

If you asked the question dealing with the *Savannah* only, discussions are underway.

Representative HOSMER. I am not asking questions about the *Savannah* only. I am talking about the general question.

Mr. GODWIN. The general question has been brought up in the Comite. The general question is also under discussion in the International Atomic Energy Agency. But these are, you might say, in the formative stage.

Representative HOSMER. Whatever should be agreed upon in order to be binding would have to be wrapped up in some kind of international convention, is that not right?

Mr. GODWIN. That is correct.

Representative HOSMER. I am not sure that we haven't reached the point where we should talk of limiting our discussions with other countries on other nuclear subjects to some kind of a condition that some of these various international liability problems be settled and got out of the way if we are going to cooperate in other fields.

Representative HOLIFIELD. If the gentleman will yield, I want to say I am in complete accord with what Mr. Hosmer said. Personally, I am going to oppose any Euratom arrangement until this indemnity problem is settled. I am going to oppose any further merchant-type ship development, anything except defense ship development, unless some of these problems are solved.

It is absolutely asinine for us to be spending millions of dollars, for instance in the case of the *Savannah*, for a ship that we do not know whether it will be allowed to go into the ports of the world. I am not trying to speak for the majority of this committee, but I have talked with many of them privately and we are becoming somewhat alarmed about this lack of solution.

I am not blaming the present witness and I hope the present witness understands that, or any of our people who have been trying to get this done. I think possibly the blame lies on other nations which are not moving as fast in the field as we are moving in technological progress.

I am going to look with a great deal of suspicion on any kind of a development which calls for tax moneys in the field of ship propul-

sion or export reactors to nations that have not taken care of this indemnity problem.

Representative HOSMER. Thank you. I think my colleague from California has well expressed the matter. There are many scientific and technical developments in this field which we seek, but in order to employ any of those to benefit ourselves or any of the rest of the world, some of the sociological and legal problems have to be handled.

Up to the present time we probably have not recognized and put the emphasis on that field that we should. It is my personal feeling—again I reiterate the committee is making no announcement of policy, but I think there are several of us who are coming to the point—where we want to meet these problems head on.

The only way to do it is to afford some inspiration, and the only way we can do it is to limit the other fields until we get equal progress in these fields.

Representative HOLIFIELD. You know we have a homely expression, it is time to fish or cut bait.

Mr. GODWIN. In this regard, Mr. Chairman, the other countries, particularly the United Kingdom and the Scandinavian countries, have been most anxious, and as a matter of fact they have taken the lead in this question of indemnity for merchant ships, through their law organizations.

They have solicited from various countries their position on the questions that seem to be outstanding in the area of indemnity for nuclear ships. I don't think from anything that we have seen so far that there is any reticence on their part to get into the problem. They are in it essentially as deeply as we. None of us has any pat solution for the overall question, although I am sure we will work out solutions in the months to come.

I don't think we can say here that there is any reticence or apparent dragging of their feet. Granted they do not have nuclear ships, but I believe all of the countries have definite plans afoot to do just this and I think their interest in getting on with the job reflects this.

Representative DURHAM. The ship is going to be in operation in 1960.

Mr. GODWIN. Are you speaking of the *Savannah*, sir?

Representative DURHAM. Yes.

Mr. GODWIN. Yes; that is correct. In the *Savannah* case—and we have been talking about the *Savannah* as the first public vessel—our discussions so far in the areas of indemnity with other countries do not appear to show that we will have any great difficulty in this regard.

Chairman ANDERSON. Why is that? Because you think the Government will underwrite the liability as it did in the reactors? Isn't that the solution which you are coming up with?

Mr. GODWIN. For the *Savannah*, which will precede our ability to get an international agreement, that is right. We have stated a position with respect to the *Savannah* and the indemnity which it will have which is apparently acceptable to these other countries that we have talked to.

Chairman ANDERSON. If we take all the load here, they don't mind that, do they?

Mr. GODWIN. Apparently not.

Chairman ANDERSON. What else have we done? You say in this statement, in recognition of the fact that the United States cannot unilaterally resolve the indemnity problems, a joint task group composed of Maritime and AEC officials is at work to identify and recommend resolutions. How much work have they done?

Mr. GODWIN. They have done a great deal so far.

Chairman ANDERSON. What have they come up with? Nothing except that the Treasury can be used to take care of this lag; isn't that right?

Mr. GODWIN. No.

Chairman ANDERSON. Has anybody proposed anything except that the United States indemnify everybody for everything?

Mr. GODWIN. In terms of the *Savannah*, we are going to lead other countries. We will have the ship in being, as Congressman Durham said. We will have the *Savannah* as a fact. We are using the *Savannah* as a pioneer, and, therefore, we are hard pressed to say we will come up with international agreements for all future ships by the time the *Savannah* is in service.

Chairman ANDERSON. Isn't this the problem, maritime indemnity problems?

Mr. GODWIN. Yes.

Chairman ANDERSON. *Savannah* is not typical. What have they done when they have been at work? Have they come up with any recommendations at all other than indemnity out of the Federal Treasury of the United States?

Mr. GODWIN. They have come up with a lot of definitive areas which will require solution.

Chairman ANDERSON. The whole area requires solution, doesn't it? You don't have to take it in segments.

Mr. GODWIN. That is correct.

Chairman ANDERSON. What do they propose for an overall solution—anything at all?

Mr. GODWIN. We do not have an overall solution as yet.

Chairman ANDERSON. Do you have any solution?

Mr. GODWIN. We have some proposed solutions which try to resolve the admiralty concept of merchant ship operation with those new problems which are imposed on the admiralty concept by the introduction of the nuclear plant. It is in these areas of limitation of liability in the admiralty concept and the admiralty law way of doing business as contrasted to the nuclear energy way of doing which we have not resolved.

We have identified some of these problems, and they are very complex, I might point out. They do not lend themselves to easy, pat solutions. Even having identified these problems, we must discuss them with other countries before we know whether we can reach a solution or not. It is in this area that we are working at the present time.

Chairman ANDERSON. I just wondered what was meant by the expression "is at work."

Mr. GODWIN. We are hard at work. It takes a lot of time. That is what it means.

Chairman ANDERSON. Have you had meetings with these other countries?

Mr. GODWIN. Yes; we have.

Chairman ANDERSON. What do they propose?

Mr. GODWIN. They are essentially in the same position that we are. They recognize the conflict between the admiralty concept and the nuclear energy concept of doing business and they realize we have to get solutions which will be acceptable all the way around. They have not come up with specific solutions either.

Chairman ANDERSON. Tell us the difference between the admiralty concept and the nuclear energy concept.

Mr. GODWIN. First of all, I am not an admiralty lawyer, but I can tell you the kind of problems we have.

Chairman ANDERSON. You are in the same position I am in. On all these legal problems, I am not a lawyer, and I can speak very freely.

Mr. GODWIN. I think the biggest problem deals with the point Mr. Hennessey spoke of. This is the fact that the owners of merchant ships in terms of third party liability are limited to the value of the ship and the revenues for the cargo carried in these ships.

This is the maximum liability to which a shipowner is exposed. This is under all conditions. This does not, however, extend down to the suppliers of components and parts for conventional merchant ships. The first problem, then, that comes in building a nuclear merchant ship, beyond the owner's greater liability to which he is now exposed, owing to the new nuclear hazards which we visualize as being considerably greater than his conventional hazards, is the fact that he cannot extend to his suppliers under the present concept the coverage which he might receive from private insurance.

The present builder's risk insurance covers only the shipbuilder. When the owner takes protection and indemnity insurance, it covers the owner of the vessel. It would not cover his suppliers or anyone doing business with him if it were a nuclear vessel. Therefore, the problems we must resolve are those which not only provide sufficient protection to the owner for the nuclear hazards involved, but extends this protection to all others who are associated with the construction, operation and maintenance of nuclear vessels. That is one important area.

Secondly, as far as the crew is concerned, they do not have workmen's compensation, as we know it. They are considered essentially as third parties. They must sue the owners of the vessels as third parties as contrasted to the Workmen's Compensation Act, which covers workers for land-based plants.

There are other complicating factors such as the longshoremen and others who work on the ship either part-time or as the ship enters port. These men are covered by the Longshoreman's Act, I believe—Longshoremen's and Stevedores' Act—which is a Federal statute and they must be considered in a separate package.

Chairman ANDERSON. Do I understand you to say that if they came on a nuclear-propelled merchant ship they would not have the protection of the Longshoremen's Act?

Mr. GODWIN. No; I imagine they would have the protection.

Chairman ANDERSON. I am trying to find out the points of difference. If they have it under both, there is no pont of difference.

Mr. GODWIN. I think the point is that they might be denied Price-Anderson protection.

Representative HOLIFIELD. Your point is that they might have their protection under the Longshoremen's and Stevedores' Act, but they do not have protection from a nuclear incident?

Mr. GODWIN. That is correct.

Representative HOLIFIELD. Is that what you are saying?

Mr. GODWIN. I am not clear. Mr. Hennessey might address himself to that.

Mr. HENNESSEY. This is because of the exception in Price-Anderson that denies or excludes from public liability claims under any Workmen's Compensation Act.

Representative HOLIFIELD. So actually this is a point where they are not protected.

Chairman ANDERSON. That is because this is a government ship You are talking about a person who is engaged in a normal merchantile trade. If he gets killed on a normal vessel he has a claim for workmen's compensation under the Longshoremen's Act. If he gets killed on a nuclear ship he gets a claim under the Longshoremen's Act What is the difference? There is none, is there?

There is no difference once you start to expand it, is there? What you are trying to say is that there ought to be some easy and convenient way to get the benefit out of the insurance on the *Savannah* over to the private owners of ships. That is quite a venture.

Mr. HENNESSEY. Senator, the thing that makes this complex in the case of maritime workers is that in addition to their workmen's compensation, unlike industrial workers, they are also entitled to assert claims at law against the owner of a ship.

There is a problem if they are excluded as recipients of workmen's compensation of whether they are eligible under Price-Anderson because in addition to workmen's compensation they have rights at law.

Chairman ANDERSON. Why don't you do it the other way? Why don't you merely make the present benefits available under the Longshoremen's Act available to anybody who is on a nuclear-propelled merchant ship, other than the *Savannah?* That would be simple. Probably too simple, wouldn't it?

Mr. HENNESSEY. I think the answer to this question probably is that their rights at law would be covered by Price-Anderson.

Chairman ANDERSON. Doesn't the whole argument come down to some way of protecting the suppliers of nuclear parts so that nobody can sue General Electric or Westinghouse or Babcock & Wilcox? Is that the function of the Government, to try to protect these companies so that they don't get sued?

Mr. HENNESSEY. There is also the problem of public protection which, of course, was one of the purposes for enactment of the bill.

Representative HOLIFIELD. Let me try my hand at understanding the point here. Under admiralty law you have said the liability of the owners is limited to the value of the ship and the earnings of that particular run of the ship.

We have to contemplate that if there is a nuclear accident in a harbor, let us say, that the nuclear accident would go far beyond in liability claims the value of the ship and its earning power on that particular run. This is the real point.

Your admiralty law covers almost any conceivable liability which might occur in normal operation of a conventional ship, but it does not cover this extension of liability which would occur with a nuclear incident. This is where you are really stymied.

Mr. GODWIN. That is right.

Representative HOLIFIELD. There is no private company at this time that is willing to project itself into the future and set up rates on this potential liability which is to a certain extent unknown, but which can be estimated to be quite large under certain circumstances.

So we find ourselves in the same position here as we found ourselves in building these reactors near these populated cities in the United States. No private insurance companies are willing to assume this risk. Because of that, in order to protect, the Congress, whether wisely or unwisely, passed this indemnity act to protect third parties against standard power stations and reactor incidents in the United States.

We have opened the door by passing a similar act which applies to the NS *Savannah*. What the maritime people and the insurance companies are waiting for now is for us to bail them out as we bailed out the reactor builders in the United States. It boils down to that.

They have not been able to assume the liability of nuclear ship propulsion as they have conventional ship propulsion. That boils it down, doesn't it?

Mr. GODWIN. Let me say this: That the insurance people that we have worked with have indicated that they can write insurance up to a stated amount.

Representative HOLIFIELD. They did the same thing in the United States. Up to $60 million or something like that, but they were not ready to go to $500 million, which could be envisaged in a nuclear incident. Our act provides $500 million but Congress could go beyond that if it wanted to. If an incident occurred near the city of Detroit or near the city of Chicago which did involve more than $500 million, the act is written so that the Congress can assume additional third party claim liability.

You are in the same position here. This is one of the reasons why I think they are slow to assume this liability. It is one of the reasons why I am going to vote against any further ship propulsion except for defense purposes unless this is solved.

If the Price-Anderson bill is considered as an open door for all maritime propulsion engines, I think you are putting the United States in the position of assuming a gross liability which is far beyond what it should assume. I think they are assuming it now in the case of these reactors around these cities.

That was my position at the time the act was passed. I may have been wrong. I was very much in the minority, but I felt the safety of the people meant a great deal more than any prospective dollar claims they might make for lost loved ones. Certainly in the case of ship propulsion, which is not justified from an economic standpoint in any way that I can see, it seems to me that it would be very unwise for the Government to take on any additional liability that they have on this experimental ship.

Representative DURHAM. Are there other questions? If not, thank you very much.

The next witness is Mr. Clark C. Vogel, Deputy Director, Division of International Affairs (Foreign Indemnity).

STATEMENTS OF CLARK C. VOGEL, DEPUTY DIRECTOR, DIVISION OF INTERNATIONAL AFFAIRS (FOREIGN INDEMNITY); AND DAVID BRESSLER, OFFICE OF THE GENERAL COUNSEL, ATOMIC ENERGY COMMISSION

Mr. VOGEL. Mr. Chairman, pages 16 to 22 of the prepared statement deals with the problem of foreign indemnity. I could summarize the statement or read it if the committee wishes.

Representative DURHAM. You can summarize it, can't you?

Mr. VOGEL. I believe I can, sir.

Representative DURHAM. Very well.

(Mr. Vogel's prepared statement is as follows:)

D. FOREIGN INDEMNITY

(Presented by Clark C. Vogel, Deputy Director, Division of International Affairs)

1. The Commission has consistently pursued the policy that, in the first instance, solving the foreign third-party liability problem is properly the responsibility of the foreign government concerned. Although the American industry and public unquestionably have an important stake in the ultimate solution of this problem, it is evident that the stake of the foreign industry, and particularly of the foreign public, is even more important. Accordingly, the Commission's efforts have been directed first toward fully encouraging, assisting and supporting efforts of foreign governments to solve the problem. In addition, the Commission has continued to study various possible measures open to the U.S. Government and American suppliers in the event that foreign governments fail adequately to solve the problem.

2. Ideally, the worldwide international convention would be the preferred vehicle for achieving a solution to the third-party liability problem. It will be recalled that Chairman McCone stated to the Second General Conference of the International Atomic Energy Agency in Vienna on September 25, 1958:

"I would like to speak particularly to the question of third-party liability. It has been referred to by several of the speakers who addressed this conference yesterday. It is my opinion and the opinion of my delegation that these references are an order to the Director-General to immediately institute necessary studies and proposals for action."

3. After the conference adjourned, Director General Cole convened an international "Panel of Experts on Civil Liability and State Responsibility for Nuclear Hazards." The panel was constituted to map out the international action which should be sponsored by the agency in the field of civil liability and international responsibility connected with the peaceful uses of atomic energy. The conclusions of the panel are to be in the form of concrete recommendations to the Director General. An expert from each of 10 countries was designated by the Director General to be a member of the panel.

4. The first meeting of the panel was held in Vienna February 23–28, 1959. The agency's secretariat, in implementing the deliberations of the panel, is now engaged in attempting to draft a proposed convention acceptable to as many nations as possible. The panel is scheduled to meet next on May 11, 1959, and will probably meet several times this year.

5. Somewhat less ambitious, but probably more readily attainable, is the objective of the Organization for European Economic Cooperation. For almost 2 years its Group of Experts and Group of Government Representatives have been drafting a proposed third-party liability convention intended for adoption by its 17-member nations (and nonmember nations as well). It had been hoped that the draft proposed convention would be put into final form at the last meeting of the Group of Government Representatives on March 18–21, 1959. However, we understand that several points relating primarily to transportation remain to be settled before submission for approval to the council of the OEEC.

6. The basic framework of the OEEC draft proposed convention appears reasonably well settled: In general, the operator of a nuclear installation shall be subject to a strict, exclusive and limited legal liability for personal injury and property damage caused by a nuclear incident occurring at, or in the course of transportation connected with, that installation. In other words, the operator shall be liable even in the absence of fault; no other person shall be liable; and the operator's maximum liability shall be limited at $15 million, unless by national legislation some other amount (but not less than $5 million) is prescribed.

7. The draft proposed OEEC convention will probably provide other significant provisions, and among them that certain nuclear incidents occurring in the course of transportation even beyond the jurisdiction of the signatory states shall be covered by the convention. The period of limitation shall be 10 years from the date of the nuclear incident. Except in the case of certain nuclear incidents occurring during the course of transportation, actions for compensation under the convention shall lie only with the courts of the country in which the particular nuclear installation is situated. Judgments entered by the competent court shall become enforceable in any of the other signatories upon compliance with the formalities required by the latter.

8. It is not possible to predict with assurance exactly when the draft proposed OEEC convention will be submitted for consideration to governments of member countries, but we are hopeful that this will be in the near future—possibly during the summer of 1959.

9. Article IX of the US–EURATOM Agreement for Cooperation recognizes that solving the third-party liability problem is essential to the success of the joint program. Accordingly, the EURATOM staff has for several months been working on an approach which would entail a third-party liability convention to be entered into by the six EURATOM nations. The proposed EURATOM convention would, we understand, supplement the draft proposed OEEC convention. The minimum upper limit of liability would be substantially higher than the $15 million prescribed in the draft OEEC convention. Furthermore, there will probably be some provision for obligatory governmental indemnification should the amount of damage exceed that of the private financial protection. We cannot yet provide a detailed analysis of the draft EURATOM convention.

10. Although we are not aware that any foreign government has to date actually enacted legislation comparable to the Price-Anderson amendments, several foreign countries—United Kingdom, Germany, Switzerland, Italy, and Japan—are reported actively to be considering proposed or draft legislation directed, at least in part, toward solving the third-party liability problem. In each case the third-party liability provisions form part of more general and comprehensive proposed legislation to regulate and control the uses of atomic energy, and follow generally the basic framework of the draft proposed OEEC convention: The operator is subject to a strict exclusive and limited legal liability. Of course, the different legislative proposals may contain somewhat different details, as, for examples, those regarding the level of liability, governmental indemnification, period of limitation, governmental recourse, and the like. It appears likely that definitive action regarding some of this proposed foreign legislation will be forthcoming this year.

11. Representatives of the U.S. Government (the Commission, Department of State, Maritime Administration) constantly offer the benefit of their experience to foreign governments and regional organizations. They have participated in numerous gatherings and meetings both in the United States and abroad, in an effort to insure that a solution is achieved that will better protect the interests of the public and industry, including those of the United States. They have explained to foreign representatives the provisions and operation of the Price-Anderson amendments in the hope that its type of solution will set an example to be followed. The proposed German legislation bears similarity to the Price-Anderson amendments.

12. Of course, to the extent that private insurance coverage becomes available, the need for governmental action should decrease. If complete coverage were to become available, the need for governmental action should be eliminated entirely. It must be borne in mind, however, that even though the American insurance industry is capable of affording $60 million of coverage for domestic installations, U.S. governmental action was still required, and was forthcoming in the Price-Anderson amendments. Our latest information is to the effect that

the current maximum capabilities of foreign insurance industries falls far below that of the American insurance industry.

13. We are also advised that the American insurance industry will not at the present time extend primary insurance coverage for American suppliers in any foreign country in which a foreign nuclear-risk insurance pool has been formed, but will extend coverage only on a reinsurance basis to the extent that such foreign pool will extend such reinsurance coverage in the United States. In foreign countries in which no such pool has been formed, the American insurance industry will consider extending primary coverage for American suppliers, but not in excess of $10 million.

14. The possibility remains that some foreign governments, for one reason or another, may not effect their own solution to the third-party liability problem within a period of time that will be meaningful to American suppliers. In such event, what measures would properly be open to the U.S. Government?

15. Various possible measures were mentioned during the Commission's presentation last May. Such measures included requiring foreign governments to agree in bilateral agreements for cooperation to hold harmless and indemnify American suppliers, or the enactment by the U.S. Government of Price-Anderson type legislation covering foreign nuclear incidents. You will recall that the Commission did not at that time recommend that such measures be taken.

16. Of course, the Commission has continued to study and explore the measures mentioned last May, and others not mentioned at that time. In this regard, we might refer this Committee to the recently published Harvard Law School—Atomic Industrial Forum, Inc. report "International Problems of Financial Protection Against Nuclear Risk" which examines at length various possible measures.

17. But, as I indicated at the beginning of my statement, such measures, if adopted at all should be adopted by this Government only in the event that foreign governments fail adequately to solve the problem. We do not believe that the U.S. Government should seriously consider adopting such measures unless required in order to supplement or stand-in for inadequate or nonexistent measures resulting from the efforts of foreign governments. The fundamental reasoning behind the Commission's belief is not complicated; the more remedial unilateral efforts—even those expressly stated to be temporary—undertaken by this Government, the more the incentive is removed from foreign governments themselves to solve a problem which is their primary responsibility.

18. Furthermore, it would appear premature to consider seriously at this time the adoption by this Government of such measures, some of which carry quite important legal and policy implications—particularly in constitutional law and international relations. The decision to adopt such measures, and their nature, depends upon the extent to which, and the respects in which, the efforts of the foreign governments are determined to be inadequate. Such a determination obviously should not be made until such time as the fruits of their efforts are apparent. We do not believe that this time has arrived. The Commission will continue its study and exploration, so that it may present its recommendations at such time as may be proper.

Mr. VOGEL. First, I would like to state that with me at the table is Mr. David Bressler, from the Office of the General Counsel of the AEC.

The prepared statement summarizes the developments which have taken place in the foreign indemnity field since the indemnity hearings last May. I think the most significant development has been that in connection with the proposed OEEC convention.

This convention, which it is hoped will be submitted to the governments involved possibly this summer, establishes an exclusive, absolute liability for personal injury and property damage caused by a nuclear installation upon the operator. His liability, while absolute, is limited. It is limited to an amount of $15 million, which is approximately the amount of available private insurance in Europe.

This limitation can be set at some other amount by national legislation, but in no event at less than $5 million.

With respect to EURATOM, a draft convention has been prepared. The scheme of this convention is that it will supplement the OEEC convention. The significant difference is that with respect to the maximum amount of liability established, and which will be established, as I understand it, on an installation-to-installation basis by a permanent committee of experts, beyond that amount the state wherein the installation is located will intervene up to the total of $100 million per accident, unless a higher sum is set by national legislation in the EURATOM states.

Following the second general conference of the International Atomic Energy Agency in September, Director-General Cole appointed a panel of experts to recommend to him a solution on a worldwide basis of the foreign indemnity problem. That panel of experts has had one meeting to date in Vienna.

As a result of the discussions during that meeting, the Secretariat has prepared a first draft convention for the international agency. In general, the approach indicated in the first draft of the convention is one of absolute liability on the operator.

There would be an incident ceiling established on the operator's liability. The amount of that ceiling has not been discussed or set. Beyond the amount of financial responsibility which would be set by the state of the installation, the state would indemnify. The limit on indemnification has not been established.

Mr. Chairman, I think that summarizes the developments which have taken place within the multilateral groups in Western Europe and the international agency.

In addition to multilateral action, legislation is pending in the United Kingdom and Germany, Switzerland, Italy, and Japan. In addition to assisting quite actively the multilateral groups, representatives of the Atomic Energy Commission and the State Department have considered possible measures which might be recommended to this committee in the event satisfactory action by the groups is not forthcoming.

We feel, however, that the problem is primarily one for the foreign governments involved, and that legislation, even that which seems the most promising, should await final action by foreign governments.

Representative DURHAM. In discussions such as you have already had, when do you expect to have your next discussion on this problem? I noted the last one was in March.

Mr. VOGEL. The next meeting of the panel of experts, on which the United States is represented, is scheduled for May 11.

Representative DURHAM. Of this year?

Mr. VOGEL. May 11 of this year. They plan to meet frequently during the coming year in an effort to resolve the problem as expeditiously as possible.

Representative DURHAM. In discussing this problem abroad and recommending some type of legislation, has any thought been given to barring suits in U.S. courts because of the fact that the incident occurred abroad?

Mr. VOGEL. Yes, sir. There has been a considerable discussion and consideration of that possible course of action. The first question that needs to be resolved in considering such a course of action is whether legislation of that type should discriminate between American plaintiffs who may have been injured abroad, and foreign nationals.

If such discrimination is indicated, some rather serious legal and constitutional questions suggest themselves, the answers to which are not entirely clear.

In addition, barring the courts to foreign plaintiffs and leaving them open to American plaintiffs may be a violation of several of our friendship, commerce, and navigation treaties which provide equal access to the courts for foreign nationals.

If there is no discrimination and the U.S. courts should be barred to both American and foreign nationals injured abroad, it would seem that some rather serious policy problems might arise.

Representative DURHAM. How does the admiralty law now work in case of an accident? Are the foreign nations responsible for the accidents that happen in New York Harbor on a foreign vessel?

Mr. VOGEL. Mr. Durham, I am afraid I can't answer that question. I am not an admiralty lawyer and I just don't know the answer to it. Perhaps there may be someone here who does know the answer.

Representative DURHAM. Of course, we will have to pattern this along somewhat the conventional type of accidents, plus the other things that we recognize as hazardous, such as radiation, which makes it more complicated.

I express the same viewpoint that Mr. Hosmer and Mr. Holifield did, that I do not think we can move in this field as expeditiously as we probably thought we could unless we can solve this problem of indemnity.

Mr. VOGEL. I agree completely, Mr. Durham. I feel quite sincerely that over the past year there has been a great deal of progress made. I think if we can produce, or the OEEC countries can produce, an agreed convention this year, this will be a significant step forward.

Representative DURHAM. We are facing pretty soon an authorization which carries $14 million for Euratom which might be made contingent on the possibility of resolving this problem.

Mr. VOGEL. The present Euratom agreement recognizes this, Mr. Durham. The Euratom people have been at work and have produced a draft. This is a first draft, but they have indicated that they would like to submit this draft or an agreed draft to the Council of Ministers before the European summer holidays.

Representative DURHAM. I think in our discussions, the members of this committee recognized this fact quite a time ago when we were debating Euratom. The bill was passed a year ago. I think those people ought to recognize the fact that we are not going to move in this field without indemnification and public protection.

Mr. VOGEL. I am confident, Mr. Durham, that the Euratom people do realize this.

Chairman ANDERSON. This paragraph 17:

As indicated at the beginning of my statement, such measures, if adopted at all should be adopted by this government only in the event that foreign governments fail adequately to solve the problem.

Do you regard this as a sort of invitation to them to fail and we will come in and solve it for them?

Mr. VOGEL. Not at all; no, sir.

Chairman ANDERSON. Shouldn't we better say that if they fail we are going to fail them, too? They shouldn't fall on their face every time. Euratom is on pretty thin ground now, if you read some of the

statements made by some of these people. They don't need it. They have coal supplies that are piling up.

It is a politically red-hot question in those countries. You are not immune to that information, are you?

Mr. VOGEL. No, sir; I am not. I am quite familiar with it.

Chairman ANDERSON. The whole Euratom transaction is a little bit nebulous right now as a result.

Mr. VOGEL. I still have a great deal of faith in it, Senator.

Chairman ANDERSON. You have to have both faith and works, and thus far there is no works going on in Europe.

Mr. VOGEL. There has been work going on. There has been a considerable amount of work going on in preparing for the joint program and the working up of the research and development invitations and proposals and the reactor project proposals, as well as in the third-party liability field.

Chairman ANDERSON. We had a man that is president of some organization in this country make a speech just a few weeks ago and I hope you read it.

Mr. VOGEL. I did, indeed.

Chairman ANDERSON. Good. That is all.

Representative HOSMER. Mr. Vogel, there is something underlying the OEEC proposition and the Euratom proposition in these various laws proposed in the various foreign countries and that is the Roman idea of willfulness, or, as the French put it, dol, which would appear to me from a brief review of some of these things to be over and above whatever liability provisions might be provided for and, therefore, put up a hornet's nest.

Do you care to comment on that subject?

Mr. VOGEL. If I may, sir, I am familiar with the principle of recourse and dol which exists quite strongly in continental jurisprudence. I would also say that my discussions with representatives of American industry has indicated that this is the principal problem they have with the OEEC and Euratom proposed conventions.

While these conventions would make the operator exclusively liable and absolutely liable, they give him a right of recourse against an American supplier under certain circumstances. There are several problems with this. One is that the concept of dol has always been rather fuzzy in meaning. It has been applied, I believe, to willful negligence and gross negligence, as well as intentional harm.

Largely through our efforts, I believe, we have effected a change in the OEEC convention from the concept of willful negligence to one of intent. We believe that this was a constructive step.

The other problem, in addition to that of definition, raised by the recourse question is that of the application of the doctrine of respondeat superior—whether or not a corporate supplier could be held for the intentional harm done by one of its employees.

We would like to see, and we certainly will urge, that the Europeans restrict the concept of dol and recourse to the individual who is intentionally at fault.

Representative HOSMER. That is the recommendation of the Harvard study that was sponsored by the Atomic Industrial Forum.

For the purpose of the record, I might just read what they did recommend, almost in your words:

> In short, we see no objection to the imposition of rights of recourse or unlimited liability on one who acts with the purpose of causing damages, provided it is the individual actor alone who would be so liable and that his purpose would not be imputed to another.

Do you know anybody who is against that proposition?

Mr. VOGEL. I don't offhand. As an alternative, it has been suggested that a corporation might be held liable for the intentonal act of one of its responsible corporate executives.

Representative HOSMER. Not to disparage the courts of any foreign country in any shape or form, but sometimes these matters have somewhat been affected by extraneous things, and I think that would introduce an element which would be a hook on which to hang some kind of extraneous reason for making judgment, don't you?

Mr. VOGEL. I do, indeed.

Representative HOSMER. Don't you think, then, in your consideration and in your talks with people in other countries and these international organizations, that this feeling of yours which is the same as the Harvard study be brought to their attention?

Mr. VOGEL. They already have been. It has been brought to the attention of the OEEC people and it is being brought to the attention of the Euratom people, who also provide for recourse in their proposed draft convention.

Representative HOSMER. Do you think that you would be likely to come up here and recommend approval of some type of arrangement that did not provide for that?

Mr. VOGEL. I would hope you would not press me on that question at the moment.

Representative HOSMER. I will not press you for an answer; I would only say that I hope you would not.

Mr. VOGEL. We will do our best to negotiate that position, but if recourse is in the final convention and it is still within the overall interest of the United States and suppliers, I would have to think a great deal about not recommending a solution.

Representative HOSMER. We might have to review that decision of whether it was in the overall interest of the country.

Mr. VOGEL. That is right.

Representative HOSMER. That is all.

Mr. TOLL. Mr. Vogel, would you say that the OEEC convention in that it does provide absolute or strict liability on the part of the European operator, if the rates of recourse can be limited and perhaps the amount of Government prtoection can be increased, that this provides a good starting point to solve this problem?

Mr. VOGEL. I think it does. I think it provides an excellent starting point.

Mr. TOLL. When do you think this convention will be ratified by the countries concerned?

Mr. VOGEL. Actual ratification, Mr. Toll, is something quite difficult to predict, but we are hoping that this will be in the near future, as I said on page 18 of the statement, and possibly this coming summer. We had hoped that at the last meeting of the group of experts they would have agreed upon a final draft to be submitted to

the governments, but some problems in connection with the transportation article arose and that is presently under discussion. We hope that they will be resolved quite shortly.

Representative DURHAM. Are there any further questions? If not, thank you very much, Mr. Vogel.

There is a rollcall in the House and we will have to adjourn the meeting until this afternoon because we have to answer the rollcall.

The first witness will be Mr. Eichholz, who was to appear at 11 o'clock.

(Whereupon, at 11:10 a.m. the Joint Committee recessed, to reconvene at 2 p.m. the same day.)

AFTERNOON SESSION

Representative DURHAM. The committee will come to order.

The first witness this afternoon is Mr. Eichholz, who will talk on international indemnity problems.

STATEMENT OF ROBERT EICHHOLZ

Mr. EICHHOLZ. Thank you, sir.

Representative DURHAM. You may proceed in your own way.

Mr. EICHHOLZ. I have been asked to describe briefly the circumstances and the conclusions of the study which I directed.

Representative DURHAM. Will you give us a little bit of your background?

Mr. EICHHOLZ. I am an attorney, sir. I was formerly general counsel to the mutual security program, and before that I was in the legal adviser's office of the Department of State.

Representative DURHAM. You were on the staff of the Harvard study group?

Mr. EICHHOLZ. I was its director. It was under the auspices of the Harvard Law School and the Atomic Industrial Forum, Inc., both of which had been very much interested in the problem of nuclear liability in its international aspects. A contract was entered into between them in November of 1957 for an independent study to be made of the question, and I was asked to direct the study. Aside from my own staff, I had the benefit of the advice and counsel of a distinguished group of lawyers and insurance men which the Atomic Industrial Forum organized to consult with me. These were largely representatives of American Nuclear Industry and its insurers.

In addition, I had the inestimable benefit of the advice and counsel of a very distinguished faculty advisory committee at the Harvard Law School. Our study was directed toward two objectives. The first was to ascertain whether abroad, as in the United States, the third-party liability problem was of such dimensions that something had to be done about it, either by way of legislation here or abroad or by way of treaty or other international agreement.

If something did have to be done about it, our second objective was to give recommendations as to what we felt were the most desirable avenues of approach toward a solution.

I might say that I am here this afternoon in a purely personal capacity as the director of this study. I am not speaking either for the Forum or for the law school.

We started out, sir, by trying to ascertain what the situation was under foreign legal systems, chiefly the civil law systems, in the event of a large scale nuclear accident.

Obviously, for this committee, I don't have to go into a background of all the considerations which led in this country to the adoption of the Price-Anderson bill. I am sure you are more familiar with those than I. We did discover in quite short order that while the situation is no worse abroad, it is not in any very material respects much better. If at the present time there were a large scale nuclear accident abroad, industry would be faced with an oppressive burden of liability for which it could not obtain adequate insurance. At the same time, the public which was exposed to injury would have no assurance of adequate compensation.

In a few respects, however, the situation may be less difficult abroad from the standpoint of the industry, than was the case in the United States before the Anderson-Price Act.

In the first place, verdicts abroad tend to be considerably lower than American juries award. In the second place, from the standpoint of suppliers, there is not as highly developed a doctrine of product liability abroad. However, the elements are present in foreign legal systems from which such a doctrine could be developed if the occasion should arise.

Representative DURHAM. You are now speaking purely from a legal standpoint?

Mr. EICHHOLZ. Purely from a legal standpoint; yes. We also looked into the various possibilities that American nuclear companies might avail themselves of by way of private contract to protect themselves from undue imposition of liability in respect to their foreign business. We found that these were not too satisfactory, either. Separate incorporation is not much help when it is the parent company of the foreign subsidiary which is supplying the designs, the know-how, or the equipment. Similarly, if a foreign company were licensed by an American company to avail itself of the American company's designs, know-how, or materials, there would still be danger to the licenser in the event of failure of any of those designs or equipment. Liability could possibly be traced back to the American licenser, particularly if the foreign licensee did no independent research and development.

There has been a great deal of talk about so-called hold-harmless clauses as a protection for American industry.

Representative DURHAM. I think you stated you found it in somewhat better condition here in the States. What specifically do you mean by better condition? You mean it is in being and can be thrown into operation immediately by statutes which exist?

Mr. EICHHOLZ. No, sir. Perhaps I didn't express myself too well on that point. In the United States, there is a large and highly developed body of law on the subject of the liability to the public of a manufacturer of equipment which causes injury.

Representative DURHAM. Which applies to third parties?

Mr. EICHHOLZ. Which applies to third parties; yes. It is the development of the doctrine of McPherson versus Buick Motor Co. Abroad this has not yet been spelled out in the textbooks or in the decisions. There has been some development along these lines in

France. But the field of so-called product liability—liability of a manufacturer to third parties injured by his equipment, largely does not exist as a coherent doctrine. But it could very easily be developed as such.

Representative HOSMER. You mean by statutory law or by convention?

Mr. EICHHOLZ. Or by judicial decision.

Representative HOSMER. We are dealing with numerous subjects here. Having it developed in all of them in the time we feel needs to be will not be an easy job.

Mr. EICHHOLZ. No, sir.

Representative HOSMER. As a matter of fact, you will have to have an incident before you can develop it.

Mr. EICHHOLZ. My only point was, Mr. Hosmer, that we had started this study by attempting to find out what risks American suppliers would run abroad, if nothing were done. I was merely pointing out that they run substantially the same risk abroad as they would have run in the United States before the enactment of the Anderson-Price Act. Then I went on to point out that there is very little that they can do to protect themselves by private contract with a foreign operator who was contracting for their equipment.

I started to point out that the so-called hold-harmless clause, about which there has been a great deal of talk, isn't too effective. It certainly is not effective, unless the holding harmless is being done by the foreign government itself, against any condition of aggravated negligence. We had considerable doubts as to whether governmental hold-harmless clauses in many situations would be politically feasible abroad, in countries in which parliamentary ratification would be necessary.

We came quite rapidly to the conclusion that we had to go the legislative or the treaty route to solve the nuclear liability problem. Ideally, there should be a worldwide convention on this subject. Within the bounds of feasibility, we might have to limit our objectives a bit more than that. But we do feel that any international convention on this subject should cover 12 points that we have laid out on page 16 of the study.

Summarizing briefly, the operator of a nuclear facility should be absolutely liable to the public for injuries which that facility could inflict upon the public. The operator's absolute liability should be limited in amount. The aggregate to which he would be responsible to the public should be limited to an amount for which he can obtain private financial protection, by way of insurance or Government guarantee or in any other acceptable form. We also feel that no nuclear facility should be permitted to exist——

Mr. TOLL. Mr. Eichholz, before you get to point 3, on point 2 you said that the liability sum should be left to individual countries to determine. If you do this, should we not just as well forget about an international agreement if half of them limit it to a ridiculously low figure? Doesn't your international figure have to set a minimum below which individual countries can not legislate?

Mr. EICHHOLZ. I certainly agree with you, Mr. Toll, that an international agreement has to set a minimum below which no country can go in providing aggregate compensation to victims of accidents. If the state itself assumes part of this responsibility, I don't think it

matters too much how low the country may wish to fix the liability of the operator. But I certainly agree with you that the combination of operator-private liability and the state-public liability to compensate must be reasonably adequate, and that a minimum should be fixed. I might say, I feel strongly that it should be far above the minimum of the OEEC draft convention.

Representative HOSMER. That is $15 million and it can slide down to $5 million.

Mr. EICHHOLZ. Yes. The way it is drafted, it can actually go above $15 million, but there seems no present prospect of that, except in Germany.

We recommend that no nuclear facilities be permitted to exist without a duly licensed operator held to strict compliance with both national and internationally agreed safety standards.

The operator should be required at all times to provide adequate financial security up the maximum of the liability which is fixed by statute or international agreement.

We also felt, however, that absolute liability could not be justifiably imposed upon suppliers. In most cases they will have relinquished control over the equipment that may cause the accident. In addition, if the operator is absolutely liable and required to maintain financial security, there really is no reason why suppliers should be held liable to the public.

Representative HOSMER. The No. 3 you are talking about, by requiring a duly licensed operator, that is a safety precaution and not necessarily a liability matter. Why do you put that in?

Mr. EICHHOLZ. It is not only a safety precaution, but it also has certain legal effects, sir. In the event of injury it is important for the public to know whom to sue. It is perfectly conceivable that there may be very complicated ownership and management arrangements in the case of these facilities.

Representative HOSMER. You are talking in terms, then, not of a license subject to the qualifications, but merely a license as such, leaving it up to the country if it wants to have no qualifications, or if it wants to have a lot of them. But it is an activity that is authorized to be carried on.

Mr. EICHHOLZ. We had two things in mind, sir. One the legal point I was speaking of, to assure that there is a readily identifiable entity on whom to pin the rose of liability. But secondly from a health and safety standpoint, it would be quite outrageous for the state to license operators who were not properly equipped to operate nuclear facilities.

Representative HOSMER. I understand that. But if we go to convention on this thing on the matter of liability and try to throw in all the ancillary things, we are buying more areas of disagreement.

Mr. EICHHOLZ. I would certainly not advocate that all the health and safety standards applicable to licensees be spelled out as part of a liability agreement.

Representative HOSMER. You substantially mean, this is the name that is on the public record and if anything happens, it is liable.

Mr. EICHHOLZ. For this purpose; yes.

The question of transport of nuclear materials has given a great deal of trouble. I understand that is the subject which is holding

up the final conclusion of the OEEC convention. I am certainly not an authority on turnsport, and it seemed to us that the simplest rule of thumb would be to provide that the operator in connection with whose operations the equipment or nuclear materials were being transported should be absolutely liable unless local statutory law made somebody else absolutely liable.

Mr. TOLL. I don't see why this is so troublesome. I would think that you don't have a critical mass while it is being transported. The extent of liability is not going to be as great as an operating reactor in the event of an accident.

I would think that the transportation companies could obtain private insurance up to the amounts of their possible liability.

Mr. EICHHOLZ. As I understand it, the chief risk is in the transportation of atomic wastes. To make a horrendous hypothetical case for ourselves, we supposed a shipment of atomic waste being transported across a bridge on the Rhine, and falling into the Rhine. This could cause much more damage, I think, than private insurers would be prepared to write policies for.

In order to avoid harassing litigation and a multitude of suits, it seems necessary to provide for one forum in which to try the issues in the event that an accident occurs—one forum not only to try the issues but to apportion the liability fund. It seems obviously most convenient to pick the courts of the country in which the facility is located that causes the accident. Similarly, the law of that country should govern the substantive issues which arise in litigation.

A uniform period of limitation is also a matter of great importance, particularly because of the long delayed nature of some radiation injuries. We felt that the 10-year period provided by the OEEC convention was quite a reasonable one, coupled with a shorter period dating from the time when the victim could reasonably ascertain that he had been injured.

There should also, as in most limitation conventions, be a provision for ratable reduction of all judgments if the funds available for their satisfaction are insufficient to meet them in full. We also feel that priority should be granted to death and personal injury claims as to all or a portion of the liability fund.

Very importantly, we feel that since under any circumstances private insurance will be insufficient to build up a fund great enough to give reasonable compensation to the public in the event that there is any but a fairly minor accident, the state must assume responsibility for compensating victims over and above what private insurers can provide. This can be done in many ways. It can be done through an indemnification scheme, such as the Anderson-Price Act, or it can be done by the state compensating victims directly, whichever national governments might prefer.

Finally, of course, there should be no discrimination on the grounds of nationality or domicile or residence.

We were acutely aware, however, that an agreement of this sort worldwide would take years to work out. Moreover, if all the countries potentially interested in nuclear development were to take part in negotiations, what you would wind up with on the first go-around, at least, would be the lowest common denominator of agreement, which would be likely neither to afford protection to the public

nor to the atomic industry. However, there is no reason why initially this cannot be worked out on a regional basis.

As Mr. Vogel told you this morning, great progress has been made in this direction, both by the OEEC and by Euratom. In most respects, we felt that the OEEC convention in its present draft is a good convention. Most of the salient points are taken care of. From the standpoint of American manufacturers, they would be pretty adequately protected. There are a few areas of doubt both because of some drafting difficulties and because of certain difficulties arising out of Government rights of recourse under the proposed German legislation. But by and large, American suppliers would be adequately protected. We do feel, however, that the limits of liability fixed in that convention are absurdly low, particularly since there is no provision for mandatory Government indemnification or Government contribution to injured victims. This may—we don't say it will and the chances are that it won't—cause difficulty, in the event of an accident abroad, for American suppliers who might be sued in the United States.

The normal American doctrines of conflicts of law provide that, if the OEEC convention were in force, American courts would apply to European law—being the law of the convention—to the circumstances of a European accident. However, injured plaintiffs might contend, or would contend, that these provisions of the OEEC convention were procedural and not substantive, and they would also contend that because of the failure adequately to compensate victims that the limitation of liability features were against the public policy of the American Courts.

The odds are that such contentions would not prevail, but if judges were outraged by the low nature of these limitations they might possibly strain to uphold plaintiffs in these cases. Therefore, we do believe that if the OEEC convention is adopted in its present form and there is no supplementary provision for foreign government compensation of victims, some legislation by the Congress might be necessary in order fully to protect American suppliers. It is rather technical in nature and I won't take the time to explain it here.

We also considered what the Congress might do if none of the conventions presently being negotiated should reach fruition. Naturally, it is a policy matter entirely for Congress to determine whether it would want to do anything. If it did want to do something to protect American suppliers, there is only one device that seemed to us to have reasonable possibilities. It derives by analogy from a provision of the mutual security act under which the Government now guarantees an American manufacturer desiring to invest abroad against certain risks of foreign investment, such as war, expropriation, or his inability to convert his foreign earnings back into dollars. It seemed to us that the risk that an atomic supplier runs is somewhat akin to the risks that the Mutual Security Act provides against, and that possibly under proper safeguards which we spell out in our report, a guaranty plan might be a fruitful scheme for Congress to consider, if it wished to consider anything in this area.

Representative HOSMER. That is rather in doubt at this point.

Mr. TOLL. Would this be inviting a U.S. judge to disregard the OEEC convention? It would seem to me that without some sort of

action like this a U.S. judge would have to be going pretty far to say that the European governments did not know what they were doing when they decided that they only wanted to provide $5 million worth of protection for their own public.

Mr. EICHHOLZ. We certainly don't advocate this guarantee scheme, Mr. Toll, if there is an international agreement. This is only in the absence of international agreement, and if Congress should feel, as a matter of public policy, that it was important to encourage the use of American equipment and materials and know-how abroad.

Representative HOSMER. I think, as indicated this morning, they are going to do just exactly the opposite in order to encourage conventions by the European governments. They are not going to let loose of that idea.

Mr. EICHHOLZ. As stated in this report, sir, we only advocate this as a stopgap measure and then only if Congress thinks that some sort of a stopgap measure is desirable.

Representative HOSMER. Sort of like temporary farm supports.

Representative DURHAM. Does that finish your statement?

Mr. EICHHOLZ. Yes, it does.

Representative DURHAM. Thank you very much, Mr. Eichholz.

Mr. EICHHOLZ. You are welcome.

Representative DURHAM. The next witness is Mr. Estep of the University of Michigan Law School.

STATEMENT OF PROF. SAMUEL D. ESTEP, UNIVERSITY OF MICHIGAN LAW SCHOOL

Mr. ESTEP. Thank you Mr. Chairman.

By way of a little background, gentlemen, I am a professor of law at the University of Michigan Law School. I am a member of a three-man faculty team that has been studying the legal problems of peacetime uses of atomic energy for, I suppose, 6 or 7 years now. The results of our study are going to come to fruition in June in about a 1,400-page book on these legal problems, primarily, but not solely directed at the domestic problems.

Of that book my responsibility has been primarily in the area of tort liability, including the indemnity provisions.

Representative DURHAM. Is the University of Michigan making this study independently?

Mr. ESTEP. Quite independently. We were granted through the Phoenix project some alumni-contributed money, and some companies have been contributing money. We have been able to carry this through faculty help. In that sense we owe nobody anything except the public, which has supported us generously. I should indicate that these views are my own but they are based on research that has been done over a period of years, including the research assistance of the members of the faculty. Primarily the thing I am going to talk about is what I am personally responsible for.

Representative DURHAM. Do you care to read your statement or do you care to summarize?

Mr. ESTEP. I would rather summarize it, with your permission.

Representative DURHAM. I appreciate that and we will put the entire statement into the record.

(Mr. Estep's prepared statement follows:)

STATEMENT OF PROF. SAMUEL D. ESTEP, UNIVERSITY OF MICHIGAN LAW SCHOOL

Over a period of several years, with Dean Stason and Professor Pierce of the law school faculty, I have been making a careful study of the legal problems created by the peacetime utilization of atomic energy. Our findings and conclusions as well as some recommendations are set forth in a book to be published in June 1959. It seemed appropriate, however, to make available to the Joint Committee during these hearings some of the recommendations dealing specifically with liability and indemnity problems which call for action by Congress. My particular responsibility has been for tort or liability problems generally (other than product liability and strict liability), and particularly with respect to the Price-Anderson Federal Indemnity Act, the effect on liability of compliance or noncompliance with statutory or administrative safety standards, rules of vicarious liability dealing with fuel processing and reprocessing, transportation and waste disposal operations, damage questions, and proof problems as to both causation and damages.

As a result of these studies I would suggest that the Joint Committee give consideration to Federal legislation dealing with the following matters. The research materials and documentation supporting these suggestions will be included in the book.

I. THE FEDERAL INDEMNITY ACT

1. Onsite property damaged in a nuclear incident

Subsection 11u of the 1954 act, as amended, defining "public liability" should be amended along the lines suggested by the AEC Report on Indemnity Act and the Atomic Industrial Forum Ad Hoc Committee, to make it clear that onsite property is not covered by Federal indemnity. It seems very likely that this is the interpretation which a court would give to the act as it now stands, in the light of its legislative history, but it would be wise to make it absolutely clear.

2. Federal indemnity coverage when insurance coverage is reduced by damage payments

An amendment should be adopted along the lines suggested by the AEC Report on Indemnity Act and the Atomic Industrial Forum Ad Hoc Committee to make sure that when private insurance coverage is reduced by payments under the policies the operator and the public should be fully covered by Federal indemnity provisions. The present wording of the act is sufficiently uncertain that a clarifying amendment should be adopted. The floor of $1 million probably is unrealistically high for educational research reactors.

3. Clarification of "nuclear incident" when foreign country involved

Congress should make it clear that the Indemnity Act (section 11o) either does or does not cover damages caused, for example, (1) by a reactor accident in the United States which damages persons or property in a foreign country such as Canada, and (2) by a reactor accident for which an American supplier may be responsible in some part occurs in a foreign country when damage is in the United States. I would recommend that coverage be provided for in (1), but (2) is much more arguable, and is related to the problem of encouraging activities of American business abroad. (Michigan Study, pp. 778–779.)

4. "Psychological nuisance" damages should be expressed precluded

While the legislative history of the Indemnity Act indicates this was Congress' intent, it should be made express not only as to Federal indemnity coverage (sec. 11o, "nuclear incident,") but also as to recovery under State tort rules, so long as the loss arises from fear and not from actual radiation contamination. (Michigan Study, pp. 780–781.)

5. Enactment of a scheme of priorities in allowing recovery against the insurance coverage and indemnity funds when losses exceed both

All losses apparently share in the funds available under existing provisions. This seems unfair at least in two respects: (1) Offsite property of indemnities should not share on an equal basis with that of innocent third parties, particularly if they are intentional wrongdoers, in making claims against available funds; and (2) personal injuries, at least as to some types, surely should be recoverable before property losses, at least of some kinds such as loss of profits

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from use of property. Probably intentional wrongdoers should not be protected under the indemnity act at all, although damages to third parties caused by intentional wrongdoers should continue to be covered. (Michigan Study pp. 782–783, 787.)

6. Indemnity protection should be provided for all operations in which criticality might occur, including processing and transportation, even if financial protection is not required

While the likelihood of such an accident is not great, surely the public and even the business concern carrying out the operation should be protected by an indemnity agreement. The AEC should be directed to execute such agreements for all such licensees, not just production and utilization facility licensees. (Michigan Study, pp. 787–90.)

7. Clarification of section 170k, dealing with educational reactors

This provision should be clarified in several respects. (1) If an educational institution asserts its immunity from liability for the first $250,000 of damages, all claimants should be made to share this loss from full coverage. (2) It should be made clear that if immunity is asserted the claimants can sue the Federal Government above $250,000 since under the present indemnity agreement this is not possible because indemnity cannot come in until there is a primary responsibility of the operator who is indemnified. (3) Nonprofit organizations using reactors for medical work and at least some research work probably should be exempted, not just educational reactors. (Michigan Study, pp. 794–5.)

8. The AEC should be encouraged if not directed to make changes in suggested insurance policies before approving their use

Any number of gaps in protection arising from variation between insurance policy coverage and the indemnity provisions have been suggested by the AEC Report on Indemnity Act and the Atomic Industrial Forum Ad Hoc Committee. I con ur with most of these. I would emphasize as particularly important: (1) The 2-year limitaion on liability after termination of the insurance contract (which can be done on very short notice by the insurance carrier at his option) is completely unrealistic. Surely the approved policy should require them to remain liable for any damages which arise within applicable statute of limitations periods, as they shall be changed from time to time. Otherwise the public may not be protected adequately in many cases. (Michigan Study, p. 803.) (2) A longer notice than 12 hours should be required for canceling coverage when a dangerous operation is alleged by an insurance carrier representative. (Michigan Study, p. 805.) (3) Transportation should be covered by both the indemnity act and the insurance policies both to and from nuclear facilities. (4) In "common occurrences" cases the insurance carriers should be held responsible for the full maximum before the indemnity fund is used .

9. Discharges from different facilities at the same time and even from the same facility at different times which unite to cause one inseparable injury or group of injuries should be considered separate "nuclear incidents" and indemnity should be given accordingly

The mere fact that releases from different installations happen to occur at the same time or to combine to cause enough radiation injury to manifest itself in recoverable symptoms should not prevent separate indemnity up to $500 million for each installation and for each discharge for which liability could be imposed. (Michigan Study, pp. 812–14.)

10. Claim satisfaction provisions of section 170e need complete revision

If a reactor incident of sufficient size to call into play the provisions of the Federal Indemnity Act should occur it is very likely that the claimants will be measured at least in the thousands and will be located in more than one state. Existing consolidation devices in the federal courts are not adequate and the provisions of 170e seem equally inadequate. In addition they do not apply if the total claims involve less than the financial protection and indemnity funds.

Congress should make specific provision for consolidation in the appropriate Federal district court of all suits so as to avoid needless and costly duplication of proof of common facts. This will necessitate a complete revision of section 170e. The specifications supporting this recommendation are set out in detail in the Michigan Study, pages 814–51.

Perhaps Congress should take this opportunity to achieve some consistency between state tort rules applied to radiation injury cases as to statute of limitation periods, types of injuries, proof of causation and damages, etc., so as to avoid some difficult conflict of laws questions and to achieve something like equal treatment of injured parties living in different states but claiming against one fund, the insurance and indemnity amounts.

II. LIABILITY PROBLEMS GENERALLY

Congress should consider the desirability of enacting provisions which would limit the kind of liability which can be imposed upon the user of radiation sources, at least when large claims are possible, because the existence of a Federal fund to pay claims may lead State courts and juries to be extremely loose in imposing liability. These might include—

1. Establishment of maximum radiation exposure levels with no recovery allowed if exposure is below such levels.

2. Requirement of licensees of large facilities that they make provision for disaster plans, including evacuation and emergency treatment, in full cooperation with appropriate Government officials; perhaps imposing civil liability for failure to so provide.

3. Specific provision for no vicarious liability for actions of independent contractors who perform certain offsite operations, such as fuel reprocessing, transportation and waste disposal, provided the operations are entrusted to licensed concerns and the employer is not negligent himself.

4. Limitations controlling recovery of certain types of damages including possibly both postconception and genetic prenatal injuries, sterility and related loss, shortened life span, psychological injuries, lost business profits and psychological nuisance damages.

5. Establishment of a more realistic method of proving causation and damages in radiation cases. This might include creation of a "Contingent injury fund" at least for future, long-delayed injuries.

States at least should be permitted to enter into interstate compacts if they can work out a more realistic plan for controlling recovery for future injuries and perhaps Congress should enact a Federal plan.

Under existing rules recovery is often based upon proving that "more probably than not" the force (radiation) caused or will cause the injury. Since the causal relationship between exposure to radiation and consequent injury is one of only statistical increase in the chance the injury will occur, it might turn on a determination of whether the chances are 51 or 49 percent. If so, it can be shown that in 50 percent of the cases the chances are better than 50–50 that the result is wrong, whether recovery is permitted or denied. The chances of correctly granting or denying recovery are remarkably similar to those in a lottery drawing.

Perhaps a "contingent injury fund" could be created to which defendants responsible for irradiating others could make a contribution proportionate to the increase in the risk of an injury they create. Recovery would be permitted in the future to those who actually suffer the disease or other injury but denied to those who do not contract it. The administration of such a plan will be difficult but the results reached could come much closer to real justice than under existing rules concerning proof of causation and damages.

Mr. ESTEP. I tried to give a little explanation for each of the items I have enumerated in the statement for the purpose of your staff and I have made available to Mr. Toll one part of our study so if he wants to make a further check on it he will be able to do so. In looking at the problem which is the subject of your hearings it looked to me like there were two basic problems, one of which was the indemnity act problem, and the other is the general problem of tort liability as it relates to atomic energy. On the first one I would suggest that I am in general agreement with the two basic ideas recommended by the Atomic Energy Commission report you have and also by the ad hoc committee of the Atomic Industrial Forum.

I would suggest one other thing in connection with number one, on-site property damage in a nuclear incident. I am quite in agree-

ment that we ought to put this legislation in. I think this is really what a court would do now if it were faced with it, but it is wise to make it clear. In making the changes suggested however, I think they have reached a result possibly that they would not want to reach, although I have no way of knowing. I haven't had a chance to talk to the AEC staff. If they change public liability in the way suggested, what they will do is to deny indemnity coverage, as I see it, to a negligent nonsupplier third party who happens to cause the reactor to burn up; an airplane crashing into it or what have you. I don't honestly believe that they want to preclude that man from having indemnity coverage. If you interpret public liability as excluding on-site property and saying it is up to the suppliers and the operators to make their contract taking care of the liability between themselves, when it comes to a negligent third party who is not a supplier, he has no way of contracting away his liability. He will be caught and yet he won't be indemnified. I would suggest a serious look be taken at that so that you do not preclude the negligent third party who causes the reactor accident. I would suggest that be looked at with changes in the possible language. I have not looked at the language to suggest any but I think it is a problem you would want to take note of.

Representative HOSMER. Do you think you would have time to suggest some language?

Mr. ESTEP. Yes, sir; given a little time. I actually got the exact draft of the language on Monday of this week and I simply did not have time to work it out.

Representative HOSMER. We would appreciate having your suggestions.

Mr. ESTEP. I would be glad to take a crack at it, sir.

Mr. TOLL. As I understand the AEC amendment, it would require the licensee or the operator to cover on-site property damage through private insurance rather than through government indemnity. This private insurance is available regardless of who causes the accident.

Mr. ESTEP. Yes, sir.

Mr. TOLL. The act runs to compensate claims regardless of who is liable.

Mr. ESTEP. The difficulty is that under the provisions of the usual insurance provisions and there is nothing in the Atomic Energy policies to the contrary, while it is true they would pay the operator for the on-site property under the insurance policy, there is nothing to preclude them from being subrogated to the rights of the operator against the negligent third party who caused the burn up and he would be liable for the whole on-site property and this would be a terrible burden to place on the negligent party.

I would suggest that we ought not to write public liability so as to take him from under the protection which you have in your indemnity provisions.

Mr. TOLL. We will ask the Commission to comment on this idea.

Mr. ESTEP. On the second point that I have here, Federal indemnity coverage when insurance coverage is reduced by damage payments, I am in agreement with the basic idea of the Ad Hoc Committee and the Atomic Energy Commission report. There is one thing I would point out here. I am not so sure that the $1 million floor on AEC coverage during the period when you haven't got addi-

tional insurance yet is going to be realistic for some reactors that are of the small research type. I am not at all sure that is a realistic figure. I am not prepared at this stage to tell you what the figure is. It seems to me the 1 million might be high. The general idea for research reactors was $250,000 and it would make sense to me to say that is the type of floor for that reactor, at least.

Point 3 is what I would call a clarification amendment. Under the present provisions of the act, nuclear incident is defined in such a way that you have a problem of a reactor on American soil, having an accident but having it in such a spot that it goes over Canada, or down into Mexico—the injury occurs in a foreign country. In the light of the language in the statute describing nuclear incidents as occurrences in the United States, and with some of the legislative history, it is arguable as to whether the liability of the American company for the injuries in a foreign country are covered by the indemnity provision. I myself would suggest that they surely ought to be and I would suggest that a clarifying amendment be adopted to make it clear this is covered. The second thing that is not covered is what happens if a reactor in Canada should burn up causing injuries in the United States because of a defective part supplied by an American manufacturing company—the core or what have you. This, I believe, probably is not covered by the present act. I simply point it up to indicate that probably it isn't. Again it probably is wise to make certain that Congress does or does not want to do it. This is certainly much more controversial and I would have no recommendation that Congress do it. On the first one, I clearly would suggest that you ought to do so and make it clear that what happens in an American reactor blowing up in America hurting people in other countries, ought to be covered by the indemnity provisions.

A fourth point I would suggest concerns a problem which I call psychological nuisance damages. This should be expressly precluded from recovery both from the operator and under the indemnity provisions. What I mean by this is the mere fact that a reactor exists in a certain site may cause loss of property value in the property around it. Take a typical example that happened in a country where they had a discharge of material. A school nearby went from 100 applicants, their usual fall enrollment, to 1 applicant the next fall. People just didn't want to send their children into the vicinity of the reactor. This kind of thing could happen in this country even through the Reactor Safeguards Committee decides that it is wise to put a reactor in a certain spot and that it is safe. There are real problems whether this drives business away or what have you. It seems to me once the ACRS has made a decision that this is a safe spot we ought not to allow psychological nuisance damages as we used to have around pest houses and hospitals and so on, when property values reduce. It seems to me we ought to expressly preclude any liability of the operator and any recovery under the Federal indemnity provisions for this kind of thing. I think this is a risk that the public has to take, a psychological consequence. Not what happens when there is an actual discharge but just the fear.

I would suggest something specifically be put in the act. There is some legislative history that looks in this direction in the Price-Anderson Act but I would suggest you make it clear that this is not to

be recovered and that you immunize the operator from such liability which would mean you would have to change State law in some cases.

Fifthly, I am suggesting the enactment of a scheme of priorities in allowing the recovery against both the insurance fund and indemnity fund when losses exceed both. Under the present provisions what you have is apparently recovery under State law for whatever damages are allowable under State law. If this exceeds $560 million, to take the hypothetical figure, this means that they can't all recover or else you scale everybody down.

It seems to me that there are some real policy arguments which dictate that perhaps we ought to put some types of personal injuries ahead of some types of property injuries. I don't think this afternoon is the time to go into where we would draw the line but I am suggesting very strongly that you contemplate drawing some lines once we exceed the maximum amount available and make some differences between types of injuries and maybe between property injury and personal injuries.

As I say, I am not prepared to go into this but at least it seems to me that you should draw some lines, and I think Congress is the only one that can do it. There is no justification for that under the present language of the act.

Item six I have titled Idemnity protection should be provided for all operations in which criticality might occur, including processing and transportation, even if financial protection is not required by the AEC, as they don't have to require under the present act. It seems to me that there ought to be a clear direction to the AEC to allow indemnity protection wherever there is a possibility of a criticality accident, because certainly in some of your waste disposal operations it is perfectly possible, theoretically, to get this, and there could be a substantial injury, I am told by the scientists. It seems to me they ought to give indemnity protection for those types of operations and not just reactor, i.e. production and utilization facilities.

On seven, the clarification of the Price-Anderson provision, subsection 170(k) dealing with educational reactors. My suggestion here is that it ought to be made clear in the act that if the State does not pick up the first $250,000 (because they assert their public immunity from suit if it is a State university), it ought to be made perfectly clear that everybody who puts in a claim has to take his share of the $250,000 loss from total recovery. You can go after the Government after the first $250,000. It seems to me that everybody ought to share in this loss. I think Congress ought to make this specifically.

Mr. TOLL. You don't believe that could be done by AEC regulations?

Mr ESTEP. Yes, sir; I think it could if you worded the regulations right. I would suggest the Joint Committee urge the AEC to at least do that.

Secondly, I would suggest that there is a technical difficulty with the 170(k) language as it now stands. It speaks of indemnity. You can't indemnify somebody against a legal liability he doesn't incur. And there is no loss for which to indemnify him under this theory. Technically under the language there is no right to recover against the Government indemnity fund at this time.

I think the court would work very hard to find something to justify recovery under the statute. The theory of indemnity is that the insurance company pays if you have to pay. If you don't have any legal liability you don't have to pay. I suggest that this one be clarified to make it clear.

Lastly, I would suggest that it seems to me that there is an argument to be made for other types of research reactors and medical use reactors other than those used in educational functions that probably fit into the same general category as do educational reactors which were exempted. You should consider if you would not want to include some other types of nonprofit organization uses, such as medical research. They don't use it as an educational tool, but as a research reactor. They ordinarily do not involve large liability problems. If you do cover them, I would suggest you might consider broadening the term and not limit it to just educational reactors.

In No. 8, I would suggest that the AEC be encouraged not to approve the present insurance policies suggested by the insurance companies unless we have made some real changes. In general I would agree with those possibilities that are suggested in the AEC report and in the Atomic Industrial Forum Ad Hoc Committee.

I have listed several that I would emphasize. The first is as important as any. The 2-year limitations period under the insurance contracts just ought not to be accepted by the AEC. I am aware of the insurance company's problems involved here but it seems to me it would be fair to say you ought to stick the insurance company by whatever liability can be brought under existing statutes of limitations, many of which are way too short and will have to be changed by the State. It seems to me we nevertheless ought to insist that there be this kind of coverage so that there will be no doubt of many types of persons being allowed to recover even though it doesn't come up for 3, 4, 5, 7, certainly as much as 10 years.

It seems to me that would not be an unreasonable figure. I don't believe the assurances of the insurance companies that they simply won't cancel policies is a good enough protection for the general public. If the liability should be from a discharge over the city, the possibility of injury 7, 10, 15 years later is way too great to in effect deny them coverage for that first 60 million of insurance coverage.

I have listed two or three other suggestions here, including the longer notice. I would clearly suggest that transportation really ought to be covered by the indemnity provisions and insurance policies, both to and from the reactor facility.

In the common occurrences cases I think it is clear the insurance carrier should be held responsible for the full maximum before the indemnity fund is used. The suggestion made by the Atomic Industrial Forum and the AEC report I would support in this connection.

Nine, I am suggesting that contrary to recommendations made by others, it seems to me that we ought to make it clear, and I think you could interpret the present act to do so although other disagree, that every time an incident happens at a separate reactor facility, the whole coverage of the indemnity act ought to come into play, even though it so happens that two reactors burn up, discharge on the same city at the same time, or at least the injury comes from both types

of radiation. It seems to me under these circumstances, the original theory would be a maximum of $500 million of Government help for each incident at each installation. The fact that they happen to happen at the same time or dump on the same city it seems to me, ought not to cut down the limit to just 500 million for both reactors It seems to me it would be wiser if we said each facility is treated as a separate one and each discharge from that facility is to be treated as a separate incident with the maximum coverage $500 million as far as the Government indemnity program is concerned.

Representative HOSMER. I do not understand your reasoning on that. You are assuming now that two installations combine to cause one occurrence.

Mr. ESTEP. Then it depends on what you mean by that, Mr. Hosmer. Let us just pick something. A reactor in New Jersey and a reactor in New York happen to burn up at the same time and they happen to dump the radioactive material on New York City at the same time. It seems to me the fact that the New Jersey one went on New York City instead of down to Newport News, Norfolk, or some place else, or Philadelphia, the fact that it went on New York City rather than on Pittsburgh, Pa., or Philadelphia, ought not to make the Government take up only $500 million.

Representative HOSMER. It is like the fellow who got shot by two different people at the same time.

Mr. ESTEP. The difficulty is that you will find some who are hurt by one and some by the other actually and it took the total to make the total damage and you can not separate them. I am suggesting when they both dump on here, there are lots of people involved. Not just the one person recovering more, but lots of people. The chances are twice as great for twice as many people to be hurt. Therefore the Government ought to kick in in this case with a billion dollars. The fact that it happened to be in the same direction ought not to reduce it as compared to what happens if it went over into Philadelphia.

Representative HOSMER. Take your New York reactor, if that was the only incident and spread its poison in the same place and involved the same number of people, the equities are no greater if two different reactors combined to cause the same damage.

Mr. ESTEP. Yes, sir, I am going to suggest it would be. One is that the total number of people involved might be much greater with the two reactors although you can't separate which was caused by which reactor. For a given person, if he has gotten twice as much radiation as he got from the one reactor, which could be, he would receive a more serious injury.

Representative HOSMER. Suppose you had a death case.

Mr. ESTEP. In a death case you can't go beyond. That is 100-percent damage. There are lots of other things that could not be death. This is not redoubling, as I see it. This is not paying a man for being shot twice.

Lastly I would suggest that the Joint Committee seriously consider a complete revision of what you might call the procedural aspects of 170(e). I think a really detailed study of those indicates that the existing procedures are completely inadequate if an accident really happens. I have made quite a study of this and made it available to Mr. Toll.

May I summarize it briefly this way: At the present time all the act provides for (in essence) is that after the States have given a lot of judgments, the Federal courts then can step in and enjoin payments until it is prorated. The difficulty arises because if you have a big reactor it is very likely to go across State lines and involve many thousands of people. There could be all kinds of suits brought. Sometimes you can consolidate them under State procedures but not always. If it is across State lines you cannot consolidate them. I have shown in the study where you cannot use existing Federal procedures; they will not be satisfactory. What I would suggest is that Congress provide—and this means quite a change in policy—that the Federal court where the incident occurs has jurisdiction. It is given process throughout the country to bring all suits into this one case and let the common fact issues be tried once for all the claims.

In this way I think we can get a much better pro-ration scheme than we possibly can at the present time. This is quite contrary to the philosophy of 170(e) as it now stands. But it seems to me the existing thing will be completely unworkable if a real incident occurs and this is the whole theory of the Price-Anderson bill. I laid out the details of this in the study. I would strongly suggest you give consideration to a real revision of 170(e).

Representative DURHAM. Do you think that could be done?

Mr. ESTEP. You mean make the changes or do the study?

Representative DURHAM. Make the changes.

Mr. ESTEP. It seems to me it could be done. I realize that there would be people who would react immediately that this is an invasion of the theory of let the States determine the liability. I think you can let the States determine the liability by making the Federal courts apply the State rules. We do this at the present time if you have any diversity of citizenship.

In a particular case we can go to a Federal court and they apply the State rule. All I am suggesting on this is that there be a procedural device to consolidate all of the claims, and this cannot be done in a State court because of the process does not run across State lines. It is feasible.

Mr. TOLL. I take it that you examined the question of whether or not the statute should provide absolute or strict liability on the part of the licensee and you do not recommend such a change?

Mr. ESTEP. Let me give a two-pronged answer to that, Mr. Toll. Yes, we have looked into the question. Two, there is a difference of opinion among those of us who studied it at the University of Michigan. I, myself, have not been quite convinced, although some of my own faculty members feel otherwise, that a blanket provision of strict liability for all reactors is accurate.

If we are going to impose strict liability and there is something to be said for this kind of a rule, certainly, it seems to me we ought to draw some lines. There are many reactors that don't present any more danger to the public than transporting a tank car of fluorine through a business city on a railroad or truck, or inflammable gasoline down the middle of the street of the city in a truck.

I don't think from some of these small reactors you would get any greater damage or risk. I don't think you should saddle them with the additional burden that absolute liability imposes. For the large

reactors this is a different question. I have never been quite convinced even on this, but I can certainly see a good reason in terms of making things easier in case of a suit. For the small ones I think it is unrealistic, myself.

Lastly, I suggest some general liability problems which I think are very important ones. Through the first four that I am suggesting here and it is really true of the fifth one, too, they do involve a change in philosophy of the present act of leaving liability up to the States.

It seems to me from my study—and I made quite a study of the unusual problems including genetic damage, sterility, shortened lifespan, future injuries, increased susceptibility to disease generally—unusual enough that State courts are going to vary greatly as to whether or not they will impose liability.

I think the mere existence of the Federal indemnity fund of $500 million is going to encourage a lot of the State courts and juries to say, "Let them recover. They will go against the Federal Government. Why should we worry? Let us kick up the sum a long way because he will get a pro rata share of the fund. Let's take care of our citizens and the heck with the other States." I have a strong feeling that this is likely to happen.

It seems to me that there are certain types of injuries in which we ought to have uniformity of result. The ones I would suggest are things like if the reactor operator stays within the minimum or rather maximum levels of discharge that are permitted under the act, then we should have a uniform result no matter in which State the accident happens to occur.

For staying under those levels, at least certain types of injury should not be recovered, such as shortened lifespan. The scientists tell us that any radiation shortens our life. If we stay within one-tenth of a rem, whatever shortening of life that ensues, is a risk of being in the world today. It seems to me we ought to place some real limits on this.

I would say the same thing is true of most of these things. Increased susceptibility to disease, genetic damage, etc. These kinds of injuries are very uncertain things under existing State rules, and I think there is something to be said for Congress adopting a uniform provision.

I think Congress should take a further step which will not infringe on the State area. I think the AEC (and perhaps you ought to direct the AEC by law) ought to insist that these owners and operators of large facilities undertake a real emergency plan of what happens if one of these things really goes up near a big city.

There is a real question of whether you ought not to tell the people to stay in their homes in many of these cases. I can imagine what would happen if at the busy hour at 4:30 or 5 in an industrial city you give a warning over a radio. You would kill more people on the highways than from the radioactive distribution.

I am suggesting that there ought to be a requirement that the operators of large facilities be forced to work out, ahead of time, the plans of evacuation, warning and what they are going to do. I grant you I have not consulted with all of them by any stretch of

the imagination and maybe they are working on this, but I have seen no evidence publicly that they are working on these.

I have heard people say in an offhand way, that this is something for the civil defense people to take care of. It seems to me we ought not to wait. It seems to me we ought to plan these things ahead of time, perhaps by imposing more severe civil liability rules if they fail to do so.

Thirdly, I am suggesting that we ought to take care of vicarious liability problems. The present provisions do not answer the problem. By this I mean if I, as a small user of radioactive material turn it over to the Federal Government to dispose of, I feel my liability ought to cease even if the Government is negligent thereafter.

My study indicates that this might not be the case. I am suggesting that there are certain fuel fabrication and fuel disposal operations which are separate enough, if done by a licensed operator, he ought to be responsible for that separate operation and not any others.

Lastly, I am suggesting here that my study has convinced me that existing tort rules are completely inadequate to take care of what happens if a group of people are exposed to a serious amount of radiation and we have to worry about future injuries. Not the present injury such as that the fellow died, but the fact that 7 years hence he will get leukemia.

In the study I have indicated that in 50 percent of the cases the chances are better than 50 percent that our solution of either allowing recovery or denying recovery is wrong. It is a pure lottery system as to future injury. It seems to me we should create some kind of contingent injury fund. Perhaps the States can do it by interstate compact. Perhaps insurance companies can work it out by an atomic injury policy that takes into account the increase in the chance that you will get leukemia created by discharging radioactive material.

I have made a study of this. It will be included in the book. It is not a worked-out plan but it is an idea we certainly will have to face. Our existing proof rules do not handle the problem. All we are talking about is a statistical increase in chances.

If you break the line at 50 percent chance (which is logical), between 75 and 25 percent, the chances are better than 50–50 that the answer is wrong. This is not good sense. It seems to me that the only way to handle this is by pooling of risk. Whether by insurance, by State action of more than one State, or by the Congress, I am not prepared to say. This is something we must face up to. Those are the suggestions I have.

Representative DURHAM. Thank you very much, Doctor. You have given us a lot to think about here. In fact, you pose quite a problem for us if we solve all of the problems you have raised this afternoon.

We are glad to have them. We will be interested in reading your book when the study is completed.

Representative HOSMER. I would be very much interested in talking to the doctor for a long time but our time is limited.

Mr. ESTEP. Thank you.

Representative DURHAM. The next witness is Roy Leifflen, counsel for the American Institute of Marine Underwriters. We are glad to have you with us.

STATEMENT OF ROY LEIFFLEN, COUNSEL FOR THE AMERICAN INSTITUTE OF MARINE UNDERWRITERS

Mr. LEIFFLEN. My name is Roy Leifflen and I am resident partner of Bingham, Englar, Jones & Houston, counsel to the American Institute of Marine Underwriters, comprised of about 130 companies engaged in writing marine insurance.

The marine insurance companies who are members of the American Institute of Marine Underwriters, through their nucleonics committee, have been considering for approximately 2 years the problems of providing insurance for nuclear-propelled vessels. In this connection they have worked closely with representatives of the Atomic Energy Commission and the Maritime Administration through frequent consultations.

They have also conferred extensively with the NELIA and MAELU groups of underwriters who have been providing liability insurance for land-based reactors, in which most companies writing marine insurance also participate through membership in those groups.

The insurance companies are proceeding in this matter with two objectives: First, to provide such insurance as may be indicated to be required for the NS *Savannah*, and second, to suggest a long-range program for privately owned nuclear-powered vessels.

For obvious reasons it would be desirable that either program should adhere as far as possible to the conventional plan of insurance applicable to other ships. How far this may prove to be possible is dependent upon legislative or administrative decisions not yet made as to the Government's requirements for insurance.

The usual plan of insurance for ships is to provide:

(*a*) Hull and machinery insurance for an agreed value covering damage to the ship from perils of the sea and other named perils, and including a collision clause covering liability for damage resulting from collision with another ship except for loss of life and personal injury, damage to structures, and damage to cargo of the insured vessel;

(*b*) Protection and indemnity insurance covering liabilities to third parties, including crew, not covered by the collision clause.

As to third-party liabilities, either type of insurance would protect only the owner and operator of the vessel.

In respect to future nuclear-propelled vessels it is the objective of underwriters to provide ample coverage of both types. It seems impossible, however, to set a definitive program at this time until congressional action has established:

(1) The amount of financial protection—or at least the range of amounts of such protection—which the Government will require from a shipowner as a condition precedent to licensing the reactor.

(2) The extent—both as to the amount and as to territorial scope—of any governmental indemnity which may be provided along the lines of the Price-Anderson bill. In connection with the question of territorial scope, it is pointed out that this is of particular importance to manufacturers of components, et cetera, as any geographical limitation of governmental indemnity might leave them in a very vulnerable position.

(3) The nature of any international governmental convention relating to liability of nuclear-powered vessels, which might well affect both points (1) and (2).

The answers to these questions take on added importance from the fact that under P. & I. insurance serious problems exist which are quite different from those relating to land-based reactors.

Prominent among these is the fact that liability for injuries to crew is involved. As to land-based reactors it is assumed that onsite employees will be covered by workmen's compensation. There is no workmen's compensation act applicable to seamen and the principles of liability of the vessel owner established under the Jones Act—which extends to seamen the rights afforded to interstate railway employees by the Federal Employers Act—and other principles of maritime law, have been described by eminent authority as creating in effect a system of workmen's compensation with unlimited liability.*

This circumstance added to the fact that P. & I. insurance is usually written with the full limit available on a per incident basis and is not on a reducing basis as is NELIA-MAELU insurance, aggravates the problems involved in providing high limits of third-party liability.

It is our hope, however, that the answers we receive under (1), (2), and (3), will make it clear whether the entire risk can be carried by the marine market or whether it will be necessary to develop a joint facility with the casualty companies. In view of the second possibility, the marine companies are currently engaged in a joint effort with underwriters of the NELIA-MAELU groups to develop a facility with adequate capacity to meet the needs of the situation.

This leaves the question of what steps are indicated with respect to the *Savannah*, in advance of such legislative determinations. In this connection it is our understanding that the Commission has given an indemnity agreement to the Maritime Administration protecting the Administration, the builder, and all suppliers and others who have contributed to the construction of the vessel against liability and that no further insurance against such liabilities is an essential requirement.

If this understanding is correct, the only immediate problem is the provision against those risks ordinarily covered by hull insurance. As to these, the institute can state that in its opinion hull insurance without exclusion of liability for nuclear damage and including coverage of the vessel for damage resulting from nuclear causes can be provided up to normal American market capacity of something in excess of $10 million.

Representative DURHAM. Thank you very much. That is a very clear statement and I can see you have done a great deal of work on it. Probably in the future, you will have more work to do.

Thank you very much.

Mr. LEIFFLEN. Thank you, sir.

Representative DURHAM. The next witness is Mr. Frank McCune, vice president of General Electric.

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*See article entitled "The Employers Liability Act," by Joseph H. Wright, American Bar Association Journal, February 1959, p. 151, quoting Dean Erwin N. Griswold of the Harvard Law School, and the "Law of Admiralty," by Gilmore & Black (1957), ch. VI, particularly pp. 252–254, where it is additionally pointed out that the extension of maritime principles by the courts has also resulted in "practically guaranteed recovery" against the shipowner for harbor workers suffering injury "by or on board a ship."

Mr. McCUNE. Thank you. I have with me Mr. Kennedy, who is counsel for the division.

Representative DURHAM. You may proceed in your own manner.

STATEMENT OF FRANCIS K. McCUNE, VICE PRESIDENT, GENERAL ELECTRIC CO.

Mr. McCUNE. Two years ago, Congress, under the leadership of this committee, passed the indemnity amendments to the Atomic Energy Act. Those amendments provided protection to the public and to industry. For domestic incidents they solved the principal liability problems.

As might be expected, some questions under the indemnity amendments have developed in the past year or two. These are discussed in the Commissions' report to the Joint Committee. Before turning to them, I would like to discuss the problem of liability in three major areas where solutions have yet to be worked out.

These areas are: (1) foreign land-based power reactors; (2) AEC-financed work to be embodied in U.S. Government-owned equipment to be used abroad; and (3) U.S. flag nuclear merchant ships.

FOREIGN LAND-BASED REACTORS

Here we must look to foreign governments for a solution. However, I hope that our own Government can assist in developing that solution and in communicating the point of view of American industry.

Presently two international bodies, the Organization for European Economic Cooperation (OEEC) and the European Atomic Energy Community (Euratom), are developing conventions for use in Western Europe. The OEEC convention is pretty well along. Basically it provides for a limit of liability equivalent to available insurance. The principal purpose of the proposed Euratom convention is to establish a system of government compensation above the amount of insurance. This government compensation would be provided both by interested national governments and by Euratom.

Our counsel, who has examined the OEEC convention draft and preliminary Euratom documents, advises me that a number of major problems have yet to be worked out. Of these, the most important is the question of recourse rights. The Euratom documents, which are still in a preliminary state, leave open the possibility that if a national government or Euratom provides compensation in the event of a nuclear incident, either would be able to sue the operator or a supplier, alleging gross negligence or willful misconduct or dolus or some other type of fault.

I am advised that these are vague and hazy concepts in U.S. law and that the Harvard report has concluded that they are no less vague and hazy in continental law. What they boil down to in the last analysis is that a U.S. supplier could be held responsible in amounts vastly greater than the available insurance, for the alleged fault of a single individual. Particularly in a hostile political atmosphere this could be a serious risk.

The report on the recent accident at Windscale indicates that it was caused in considerable part by operating errors. But what is

there to prevent a court from concluding, with the benefit of perfect hindsight, that the reactor should have been equipped with instruments and controls to guard against those errors, and that failure to do so was negligence, gross or otherwise?

The closest parallel we have to the proposed atomic liability conventions is the so-called Warsaw convention which governs liability in international air transportation. Under the Warsaw convention liability is unlimited if there has been willful misconduct.

I am advised that the words "willful misconduct" in the Warsaw convention have been construed by one court in this country as substantially equivalent to so-called gross negligence, and that a recent report of a New York City Bar Association Committee has concluded that the words have had no clear application under that convention.

Congress rejected this whole approach in enacting the Atomic Energy Act indemnity amendments. Foreign suppliers of U.S. reactors, no less than U.S. suppliers, are completely protected above the amount of insurance by the U.S. Government indemnity. Hence, recourse provisions would give U.S. suppliers of European reactors much less protection than Congress has provided to European suppliers of American reactors or components under our own legislation.

A recourse claim by foreign governments against a U.S. supplier might run into several hundred million dollars. When one considers the character of the U.S. enterprises engaged in nuclear business abroad, it is plain that such a claim, asserted by foreign governments, could present serious problems from the point of view of the national interest.

I am attaching as an appendix to this testimony a memorandum on the European liability situation. This memorandum outlines some other problems and points out the need for U.S. Government action. Completion of major projects now under way is contingent on a satisfactory solution of the liability issue. All of us are aware, I believe, that the Euratom program will not be successful without such a solution.

GOVERNMENT-OWNED EQUIPMENT TO BE USED OUTSIDE THE UNITED STATES

The 1957 indemnity amendments applied to Commission contract activities as well as to licensed activities. However, the amendments apply only to occurrences within the United States. Hence, liability for a nuclear incident occurring outside the United States arising out of Commission contract work is not covered.

Thus far the principal concern has been the work which has been done under contract with the Commission in connection with Department of Defense projects. The Department of Defense has recommended legislation which has been referred to the House Armed Services Committee. This bill covers work under DOD contracts as well as projects carried on jointly by DOD and other agencies such as the Commission.

The new Space Agency has recommended similar legislation. A comprehensive treatment of the extraterritorial nuclear liability problem involving Government-owned equipment would require coverage for contracts of the Commission as well as of all other agencies of the Government.

To my mind, all such legislation should follow as closely as possible the pattern of the Atomic Energy Act indemnity provisions. I believe the legislation should be written so that coverage will be automatic and required rather than a matter of case-by-case bargaining with contracting officers.

If coverage is required, we can be confident that the indemnity will apply if it is needed. If the indemnity is not needed, no one is hurt.

On the other hand, if the legislation grants a broad discretion to contracting officers, there is always the possibility that protection will not be provided where it is needed. Our concern here is with what we do not know or foresee. Contracting officers, like the rest of us, can make mistakes in judging the risk. It is particularly easy to make such mistakes since no one likes to think that his project involves a risk.

If legislation provides automatic coverage, there will be much greater assurance that the congressional intent will be fully carried out. Moreover, the automatic approach is fairer because it assures uniformity of treatment.

Finally, the automatic approach would be simpler and less time consuming.

I hope that Congress will be able to act this session on a bill to provide indemnity for DOD work and that comparable legislation will be enacted to cover extraterritorial risks arising out of Commission contracts.

U.S. FLAG NUCLEAR MERCHANT SHIPS

Last year Congress passed indemnity legislation to cover the NS *Savannah*. I believe that we are technically ready to go forward on other nuclear merchantship projects. We will have the same liability problem on any such projects.

Present indications are that the ultimate solution of the maritime liability problem will require action by way of insurance, by way of international agreement and by way of U.S. national legislation.

I believe that each major nation will have to assume some responsibility for injury or damage above the amount of insurance which might be caused by ships of its own registry. Accordingly, I hope that Congress will pass legislation which would provide *Savannah*-type coverage for other U.S. flag nuclear merchant ships—both Government-owned and privately owned.

I gather from the Commission's report that representatives of the Commission and the Maritime Administration have been working with the insurers to develop insurance coverage for the *Savannah*, and thereby to establish a pattern for nuclear merchant ships (committee print entitled "AEC Report on Indemnity Act and Advisory Committee on Reactor Safeguards" April 1959, p. 9).

I hope that, as in the case of domestic reactors, there will eventually be general three-way discussions between representatives of the insurers, representatives of Government and representatives of all interested segments of industry, looking toward establishment of reasonable and generally acceptable insurance patterns.

In addition, several groups in this country and abroad have been considering amendments to the maritime liability conventions. Eventually it seems to me that there will have to be some system of limitation of liability established by international agreement.

OPERATIONS UNDER THE 1957 AMENDMENTS

Under this heading I want to touch briefly on three points: (1) the insurance situation, (2) the Commission's proposed amendments to section 170, and (3) the work of the Advisory Committee on Reactor Safeguards, which was made a statutory committee in the 1957 indemnity legislation

1. Insurance: The insurers who have pooled their capacities in the two syndicates, NELIA and MAELU, have done an outstanding job of assembling insurance resources and affording coverage. Like all others entering the atomic field, they have had to do some courageous pioneering. The policies have been written on a broad basis and have been improved from time to time.

However, the policies still leave some gaps in coverage; these are analyzed in the Commission's report and also in a paper prepared by a special task group of the Atomic Industrial Forum. I hope that the insurers will eventually find it possible to eliminate most of these gaps.

2. The Commission's proposed amendments—(*a*) The onsite property amendment: The final wording of the 1957 indemnity amendments was such that liability for reactor-site property was covered under the financial protection and indemnity provision of the bill. The Commission has now proposed to delete this coverage for licensed activities.

The basic practical problem here is that the NEPIA-MAERP syndicates had not provided an improvement in their coverage against liability for reactor-site property. The result was to leave suppliers of nuclear equipment, who were not prime contractors of the reactor owner, with no practical means of obtaining private protection against such liability.

It appears that the NEPIA-MAERP syndicates are now making an improvement in their coverage against liability for damage to reactor-site property. Some considerable problems still remain but I am hopeful that it will be possible over a period of time to solve these problems by private insurance and by contract. In view of this, I see no objection to the Commission's proposed amendment.

(*b*) Automatic reinstatement provision: The NELIA and MAELU policy form is on an aggregate limit of liability basis. It does not contain an automatic reinstatement provision. As a result, if claims are paid under the policy and no reinstatements of the original policy amount is made, there can be a gap between the face amount of the policy and the amount actually available to pay subsequent claims.

It seems to me that Congress intended in the 1957 indemnity amendments to have the Government indemnity begin at least at the point where the required insurance funds were used up.

I do not believe Congress intended that the indemnity begin at the face amount of the policy when this face amount is greater than the total amount available under the policy. The Commission's proposed amendment is primarily intended to clarify this point. Although I do not believe the amendment is necessary, it is certainly desirable by way of clarification.

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(*c*) The Advisory Committee on Reactor Safeguards: A large part of the Commissions' report is devoted to the work of the Advisory Committee on Reactor Safeguards. I would like to close this testimony with some brief discussion of the work of this Committee.

The Committee, in its report to the Joint Committee, has stated that it is "examining the extent to which it can study in detail the problems upon which it advises." (Committee print, p. 60.) I believe that this examination is highly desirable.

The detail involved in the present procedures is extremely burdensome and will, if continued for long, constitute an obstacle to progress in power reactor development. This is not to say that the Reactor Safeguards Committee has not done excellent work to date. The problem is how the Committee can most effectively function in the future.

My own view is that once there has been prototype experience on a particular type of reactor, subsequent reviews by the advisory committee of reactors of the same type should be less detailed, and that primary responsibility for detailed analysis of reactors of proven types should fall on the Commission staff.

To put the matter another way, I believe that the Committee's necessarily limited time could most profitably be devoted to safety problems on newer types where experience had not yet been accumulated.

It is a pleasure to appear again before this committee. I appreciate your courtesy in inviting and listening to my views.

(The appendix referred to follows:)

EUROPEAN LIABILITY PROTECTION SYSTEM

Appendix to testimony of Francis K. McCune

It is understood that Euratom is considering the following proposed treatment of the atomic liability problem:

1. Euratom would recommend adoption of the OEEC convention.
2. The OEC convention would be supplemented by Euratom arrangements, under which—
   (a) Each national government would provide (if an incident originated at an atomic plant in its own country) an amount either of (i) $100 million or (ii) $100 million less the amount of private insurance.
   (b) The Euratom countries would assume an obligation to make a further contribution; the amount of this contribution and the formula for determining it and allocating it among the member countries are not specified.

The documents contemplate that these Euratom arrangements would be open for adherence by non-Euratom countries.

In broad outline, these proposals represent a good beginning toward solution of the atomic-liability problem in the principal countries of Europe. However, a number of major problems remain.

PROBLEMS REQUIRING ACTION

1. Inconsistency between Euratom and OEEC proposals

The Euratom drafts, although supposed to be based on the OEEC convention, contain provisions seriously at variance with it. These contradictions make for legal confusion. They also could create substantial political difficulties in the way of ratification of one or the other or both documents. At best, they could lead to some delay while differences were being reconciled.

(a) The OEEC convention contemplates a uniform requirement of private financial protection and a corresponding limit of liability in a given country. The Euratom draft provides for an evaluation of each installation by a committee of experts, with a different requirement of financial protection for each installation.

(b) The theory of the OEEC convention is that the operator's liability is cut off at the amount of required financial protection and that the operator is not subject to liability beyond that; the OEEC convention seems to contemplate that any Government contribution would be made by way of direct compensation to injured persons. The Euratom drafts, despite some confusion, seem based on the motion that the operator's liability is preserved and that the Government contribution will come in by way of indemnification of the operator.

Either the OEEC or Euratom approach would seem acceptable on each of these two issues, but it is important that the two documents be consistent.

2. Defects in Euratom proposals

(a) *Government right of recourse.*—The Euratom proposals leave open the possibility that the national government or Euratom or both would have a right of recourse against an operator or equipment supplier on some vague basis of fault. This, of course, is inconsistent with the approach in the Price-Anderson Act. Under that act foreign suppliers of U.S. reactors, no less than U.S. suppliers, are protected by the U.S. Government indemnity regardless of fault or degree of fault.

It would be highly desirable if U.S. suppliers of European powerplants were accorded treatment as favorable as that provided to foreign suppliers of U.S. plants. A system under which a recourse claim can be asserted by a national government or by Euratom against a U.S. supplier would, of course, leave the supplier subject to considerable risk, particularly if the political situation were unfavorable. Moreover, the amounts involved are so large that a recourse claim by a foreign government against a U.S. manufacturer could present serious problems from the point of view of the national interest.

(b) *Need for clarification.*—The Euratom proposals require considerable clarification and redrafting. The drafts are unclear not only on the points enumerated above but on other matters as well. For example, the Euratom proposals appear to contemplate that there may be a considerable gap between the amount of required private insurance and the amount of government indemnity with private industry at risk with respect to this gap. Again, the Euratom proposals do not provide a clear ceiling on liability.

3. Competing national legislation

A number of countries—Germany, Switzerland, and Great Britain—are considering national legislation to deal with the atomic-liability problem. These national solutions are, in general, not as desirable as the OEEC and Euratom proposals. For one thing, unlike the conventions, the national legislation does not deal with the extraterritorial problem. In view of the relatively small areas of the European countries concerned, this issue is of major importance.

There is, of course, a need for some national legislation but such legislation should be tailored to and should supplement the international agreements rather than providing inconsistent treatment.

4. The OEEC convention

From the point of view of the U.S. reactor supplier, the OEEC convention has some significant limitations (see attachment). It may still be possible to deal with these problems through the OEEC organization. The main purpose of any Euratom convention, on the other hand, is obviously to provide government compensation above the amount of private insurance. However, if it is not feasible at this stage to obtain significant changes in the OEEC convention, it may be possible to deal with some problems not adequately covered by OEEC, in the supplementary Euratom provisions.

NEED FOR ACTION BY U.S. GOVERNMENT

There are obvious limits to the effectiveness with which U.S. industry can work on these questions in Europe. U.S. Government representatives have already done effective work in this area. However, if the problems are to be satisfactorily resolved, a continuing, vigorous, coherent program of U.S. Government action directed to clearly defined objectives is required.

[ATTACHMENT]

THE OEEC CONVENTION

From the point of view of a U.S. equipment supplier, the OEEC Convention has some significant limitations.

1. Liability for reactor owner's property

It does not cover the problem of a suppiler's liability for the reactor owner's property. This is a risk with a much higher probability than the risk of an incident affecting persons or property away from the site.

In theory this risk can be covered (a) by insurance, or (b) by contract with the reactor owner. However, the U.S. experience to date has been that insurance against liability for damage to the nuclear plant itself has not been available. A solution by contract is possible for the prime contractor. However, this solution is usually not possible for a component supplier who may be several contract tiers removed from the reactor owner, but who might in the end be liable.

One possible treatment of this problem would be, as suggested in the Harvard Report, to provide that a supplier would not be liable for damage to the reactor owner's property except to the extent that such liability had been assumed by contract. This would leave the parties free to make their bargain in the light of the availabilty and cost of insurance, price, and other relevant considerations.

2. Recourse claims by operator against suppliers

The OEEC Convention gives the facility operator a right of recourse against a supplier in two cases:

(i) If such damage results from an act of omission done with intent to cause damage, against the person who so acts or omits to act, unless the national law applicable excludes such right of recourse; or

(ii) If so provided expressly by contract.

(Article 2(g) of February 13, 1959 Draft.)

In most cases the practical effect of this provision will be to give the facility operator's insurere's a claim to recover a loss which they were paid a premium to take. Morevoer, it seems unfair to shift a loss from insurers who are paid to take a risk to the stockholders of a corporate supplier because of the misconduct of a single individual—an individual moreover who may not have any managerial responsibility.

Possible solutions here are—

(*a*) to eliminate alternate (i) leaving the matter of recourse to be settled entirely by contract;

(*b*) to provide that the right of recourse in case (i) can be waived in whole or in part; under present Italian law, for example, a waiver is possible except where the act or omission is that of a top corporate official:

(*c*) as suggested in the Harvard Report, to limit the right of recourse in case (i) to a right againt the individual guilty of the act or omission and to provide no such right against a corporation;

(*d*) to provide that the right of recourse in case (i) would apply in the case of a corporation only where the act or omission had been that of a top corporate official.

3. Definition of "operator"

The OEEC Convention channels liability to the operator and imposes on the operator a requirement of providing financial protection. It would be desirable to make it clear that a manufacturer who performed services in connection with startup of the plant would not be treated as the operator for purposes of the convention.

4. Scope of liability covered

The OEEC Convention appears intended, like the Price-Anderson Act, to cover any legal liability (with only stated exceptions) arising out of a nuclear incident. It would be helpful if this intention was made more explicit.

Representative DURHAM. Thank you very much, Mr. McCune. You have presented an excellent statement. I am very much interested in your last paragraph there because I think I have seen this, although I am heartily in favor of it, but I can see how it can be burdensome, and would require quite a lot of detailed analysis.

It is already burdensome to most of those people because of the fact that most of them have jobs and are busy people. We may have to work out some other solution in the future when this load begins to pile up as it is already piling up at the present time.

Have you any comment to the statement, Mr. Kennedy?

Mr. KENNEDY. No, sir, I do not.

Representative HOSMER. Mr. Kennedy, in connection with that detailed analysis, I wonder if there is anything to indicate any amendments to the Price-Anderson Act?

Mr. KENNEDY. There is nothing in the analysis. I do believe it will be desirable, as Mr. Eichholz indicated, when the OEEC Convention is enacted to nail down the proposition that this will be given full effect in the American courts.

We have looked into the law on this and have concluded that in all probability it will be, but like most legal issues, it is a debatable point. We think legislation would be desirable to make this clear and beyond any reasonable question. We, therefore, do believe that there will be a necessity for U.S. legislative action to supplement the action of the European governments in this area, but it would be of a supplementary character.

Representative DURHAM. I believe it was stated here this morning by Mr. Vogel, of the AEC, that the next meeting is sometime in July, I believe.

Mr. KENNEDY. I understand that.

Representative HOSMER. Are there any other legislative changes that should be imminent?

Mr. KENNEDY. No, I do not suggest any others.

Representative HOSMER. Your company, I believe, Mr. McCune, has sold some reactors overseas which it has not yet delivered, at least to Euratom, and that one in Italy. Are there any unsettled problems involving third party liability that, if not settled, will require you to review whether or not you deliver these pieces of machinery?

Mr. MCCUNE. In all cases we do not intend to let them be operated nor do our customers intend to operate them if these are not adequately settled.

Representative HOSMER. In other words, you, on your own initiative, are engaging in talks respecting some of the third party liability?

Mr. MCCUNE. No, I don't believe that American business can actually talk to the foreign governments, but contractwise you can agree.

Representative HOSMER. I thought you said that both you and the foreign people were looking toward settlement.

Mr. MCCUNE. I have confused you, maybe. What I said was that where we have made such sales we do not intend that the reactor will be operated until liability problems are settled, and the people to whom we have made the sale are equally determined that they will not operate it until the liability problems are settled.

Therefore, as far as I know, any of these international projects are going to come to a halt someday if this is not settled.

Representative HOSMER. There are about three areas, I presume, in which some steps are being taken. That is, the enactment of national law; two, the OEEC, and three, whatever Euratom is doing.

Mr. McCUNE. That is right.

Representative HOSMER. The international agency of the United Nations is considering certain aspects of the liability situation, as well?

Mr. McCUNE. That is right.

Representative HOSMER. Do you have any suggestion as to how these things could be moved along? I do not think any one of us would like to see this thing grind to a halt, as you expressed it.

Mr. McCUNE. As far as Euratom or OEEC is concerned, it seems to me this is a basic problem of Europe and not Euratom or OEEC or a national government. As far as the governments outside of Euratom are concerned—let me start first with the Euratom governments—there we have entered into an agreement to produce certain things: Provide dollar financing, assurance of receiving considerable technical assistance and provisions of fuel guarantees and fuel availability.

For the other areas, I think about the only thing is fuel availability. It seems to me that the real situation is that fuel availability should be contingent on reasonable insurance and liability provisions, because they are not going to operate without it.

This is the one thread that runs through the whole thing—fuel availability.

Representative HOSMER. We have not had anybody mention this. I would just like to bring it up. Suppose you get your liability problem settled with the Italians when that reactor goes in down there and about that time the Kremlin pushes a button and has the Albanians say you are dropping radioactive material all over our country.

This would be a propaganda thing to blacken the eye of the United States. Can they go into the Italian courts? What thought has been given to that situation?

Mr. McCUNE. Anyone who operates nuclear facilities is or could be subject to suit that some imagined thing had happened. It is the course of prudence to keep enough records to show that it has not happened.

Certainly, part of these is monitoring what you do at the site.

Representative HOSMER. I do not suppose they would ever go to trial but the Communist countries can sue in European courts.

Mr. McCUNE. Yes. You answer that.

Mr. KENNEDY. Yes. It is my understanding that generally the courts of Europe, like the courts of this country, are open to foreign nationals, so that suit could be brought in most of the European countries, I believe.

That is certainly true, as I understand it, and in Italy, as you say. Fantastic claims can be made against you. I do not know that there is any sure-fire defense against having a claim made against you.

On the other hand, I would assume that in all of these countries of Western Europe where the claims had no merit they would not prevail. As we understand the law in countries like Italy and Germany and the other countries in Western Europe, they do have standards of proof and you cannot just make a claim. You have to prove it.

Representative HOSMER. You do have adequate opportunity to protect yourself?

Mr. KENNEDY. Yes, sir, I would say we do, as I understand it.

Mr. MCCUNE. I think I can add to that. I think it is quite possible, practical and, frankly, everybody does maintain records at the site which will show whether or not anything of the type that you described could have happened before any competent technical judgment could be made.

Representative HOSMER. I realize that. I wonder how effective an immediate defense to the propaganda could be carried on.

Mr. MCCUNE. These are part of the hazards of engaging in this kind of business and that is one more reason for wishing that liability protection could be pretty full as compared to other types. This is just another phase of what I think I brought out. We are principally concerned about an advanced technical business in an area of general public ignorance.

Representative HOSMER. Thank you.

Representative DURHAM. It certainly is very desirable that we move along and try to settle this problem of international third party liability. We are putting this year about $14 million in our present authorization bill which goes directly into this Euratom development.

I, for one, feel that we ought to have this thing cleared up as soon as possible. We are investing a lot of money in it.

Mr. TOLL. As I understand your suggestion of supplementary legislation, it would not subject the U.S. Treasury to any liability but it would make clear to U.S. judges that they are supposed to apply the OEEC convention.

Mr. KENNEDY. That is precisely it. We are not suggesting any U.S. Government responsibility.

Representative DURHAM. We cannot tell them what to do but we certainly can urge them that if they expect to get cooperation from the United States in carrying out this project, we would require cooperation from them.

Mr. TOLL. I agree with you that most U.S. judges should or would come to the conclusion that the OEEC convention if ratified would be applicable in the event of a nuclear accident in one of those countries. It might be desirable to spell it out in the statutes.

Mr. KENNEDY. It is certainly our view that you would come out that way absent legislation, but legislation would make it clear.

Representative DURHAM. It was suggested by Dr. Estep of the University of Michigan Law School it would be very desirable if we could have a world convention.

Mr. KENNEDY. That would be very desirable.

Representative DURHAM. I wonder how practical it would be to obtain results in the present world situation.

Mr. MCCUNE. I agree with you on that.

Representative DURHAM. Thank you very much.

The next witness is Mr. Lee L. Davenport, president, Sylvania-Corning Nuclear Corp.

STATEMENT OF DR. LEE L. DAVENPORT, PRESIDENT, ACCOMPANIED BY HOWARD COHEN, SECRETARY AND GENERAL COUNSEL, SYLVANIA-CORNING NUCLEAR CORP.

Mr. DAVENPORT. I have with me today Mr. Howard Cohen, who is secretary and general counsel of our corporation.

Permit me first of all, to thank you on behalf of myself and Sylvania-Corning Nuclear Corp. for the opportunity you have given to me to appear before you today.

The subject of third party liability indemnification continues to be an extremely complex one. Fortunately, the enactment in 1957 of the reactor indemnity amendment to the Atomic Energy Act has established a firm foundation for resolution of the more pressing liability problems posed to our industry and to the general public in connection with nuclear incidents which may arise within the territorial limits of the United States.

We understand that the Atomic Energy Commission is presently reviewing its originally proposed regulations under the indemnity amendment with a view to issuing definitive regulations in the near future. Our general counsel, sometime ago, prepared detailed comments on the then proposed Atomic Energy Commission regulations covering Comission licensees.

In the hope that Mr. Cohen's comments in this regard may be of some help to you in connection with these present hearings, I am submitting to the committee copies of those comments together with copies of this statement.

Representative DURHAM. Thank you, sir. We would be glad to have them, and will insert the material at the end of your statment (see p. 106.)

Mr. DAVENPORT. Mr. Cohen's comments deal entirely with the Commission's proposed implementation of certain provisions of the existing Indemnity Act. They do not purport to treat with any problems which may fall outside of the present statutory indemnity authority.

I originally planned to confine my statement today to three specific problems which fall outside the scope of the present indemnity provisions of the Atomic Energy Act. However, since preparing this statement, we have received and have had an opportunity to review briefly, the Atomic Energy Commission's report on the Indemnity Act and I would like to make a few brief comments in connection with that report.

First, with respect to the Atomic Energy Commission's proposed amendment to eliminate coverage in licensee indemnity for liability for damage to onsite property, I would like to reiterate the concern I have previously expressed before this committee as to the potential liability of a supplier for damage to property at the reactor site.

The subsupplier in particular is frequently unable to protect himself to such claims by agreement with the reactor owner with whom he usually has no direct contact.

We are gratified to note that the nuclear property damage insurance syndicates have now indicated a willingness automatically to waive subrogation rights. However, until this afternoon we have been under the impression that there has not been available to suppliers any insurance to cover the supplier's potential liability for damage to onsite property.

I do wish to note with considerable gratification at this time that in discussion with some of the NEPIA people just this afternoon they indicated that the NEPIA group might now seriously consider any request by a supplier for NEPIA coverage of his liability for an otherwise uninsured onsite risk.

Secondly, with respect to the Commission's proposed amendment covering the problem of the possible gap in the event of payment by insurers resulting from a nuclear incident, I strongly feel that section 170(c) of the present act provides a mandate for the Commission to fill any such gap during any period of time when insurance is in fact, not available to the licensee.

However, in view of the disagreement among authoritative sources upon this interpretation of 170(c), additional legislative clarification would not be out of order. I question only the limitation of 90 days under the proposed amendment.

If, in fact, a licensee is unable to have his insurance reinstated to the initial amount, the intent of the act would seem to require that the amount of financial protection be permanently reduced accordingly, and that the Commission's indemnity apply above such reduced amount.

Representative HOSMER. Would that not, as a matter of fact, give an opportunity for the insurance people to cut down the amounts of their policies that they would afford the industry?

Mr. DAVENPORT. We feel there is a question of the protection of public interest in this gap which might have developed.

Representative HOSMER. The philosophy of the Price-Anderson Act is that a certain amount of that liability should be assumed privately before the Government steps in. The amount was fixed at some $50 million. If you start allowing exemptions from it for an unlimited period, you are certainly violating the philosophy of the act.

Mr. COHEN. If I may, I think that there are other pressures that the Atomic Energy Commission could bring to bear upon the insurance industry to reinstate this insurance if in fact they have the capacity.

It seems to me in the absence of such reinstatement after the exercise of any such pressures——

Representative HOSMER. I think if they cannot get their insurance back in 90 days they had better shut down.

Mr. COHEN. That is one alternative.

Representative HOSMER. This act is not to take care of any particular company's problems. This act is intended to encourage the general overall development in the United States.

Mr. COHEN. It may very well be in the interest of the overall development of the atomic energy program to keep the activity going. Under these circumstances, I suggest it would be well to give the Commission the discretion to do so.

Representative HOSMER. I would suggest that if they can't meet the philosophy of the act, they will have to fall by the wayside.

I am quite convinced that 90 days is sufficient to do it. We won't quibble on that.

Mr. DAVENPORT. I would return to the prepared text and address myself to three aspects of the act.

First, under the provisions of the act, our company and, I believe the industry in general will be faced with a potential liability problem which may present a serious roadblock to any plans to the taking of initial steps to enter the field of reprocessing spent fuel elements.

In the statement which I submitted to the Joint Committee on February 16, 1959, in connection with the committee's 202 hearings, I

indicated my belief that it is generally agreed that reduction of the fuel cycle cost is essential to the early achievement of economic nuclear power and that reprocessing costs are a vital factor in the reduction of the overall fuel cycle cost.

I also indicated our gratification at recent indications of Commission interest and support for research and development in this area. I then proceeded to point out that until the establishment of commercial reprocessing facilities becomes feasible, initial steps may be taken by some companies to facilitate further expansion and development of their fuel element programs by undertaking major services in connection with the supply and subsequent disposition of fuel elements.

Sylcor is presently engaged in discussions with several utilities which, if successful, could result in our company undertaking arrangements for the handling of spent fuel elements including their transportation to existing reprocessing facilities. We hope eventually to be able to reprocess such elements in facilities of our own. Unfortunately, this is not economically feasible at this time.

Mr. TOLL. May I ask you there about the hazard of carrying around spent fuel elements. Is this terribly hazardous or don't the waste materials become more hazardous after they are chemically treated and reduced to liquid form?

If a spent fuel element is dropped into a river, if a bridge breaks down, is this going to create a serious hazard or not?

Mr. DAVENPORT. There is a possibility, and there are comments further along in our testimony concerning some of these points, that the hazards of fracturing spent fuel elements and permitting the dusty products, if I may refer to them as such, generated by fission products within uranium oxide to reach the atmosphere, this hazard might indeed be a serious one.

There is not, of course, a substantial danger of criticality occurring in the transportation of fuel elements which in its own way will certainly reduce the risk below that with respect to criticality that exists in a reactor.

Representative HOSMER. These fuel elements are not just shipped around in wooden crates. They are well encased.

Mr. DAVENPORT. Yes, they certainly are in accordance with all present suggestions by all those manufacturers who are considering this problem. They are quite well encased and everyone hopes that they are as adequately protected as we know how to protect them.

Representative DURHAM. It would have to be approved by the Safety Division of the AEC?

Mr. DAVENPORT. Of course. There is some experience and some backlog of knowledge within the Commission on this type of transportation.

Representative DURHAM. The Commission has been doing it for a long while.

Mr. DAVENPORT. Yes, sir.

As I pointed out in my "202" statement, until such time as it is economically feasible to establish our own facilities we will have to negotiate with existing Government facilities for long-term contracts for actual preprocessing if we are to be able to fulfill our proposed commitments to the utilities. To enable us to do this I have already

requested in my "202" statement that section 161m of the 1954 Atomic Energy Act be amended to permit the Commission to enter into such long-term contracts with persons other than section 103 or 104 facility licenses. Our present ideas for undertaking reprocessing services are necessarily conditioned upon such an amendment to section 161m.

In the course of performing any services along the foregoing lines, we will have to transport spent fuel elements from the reactor site to Commission-owned reprocessing facilities. Detailed studies made on the subject indicate that water transportation frequently would be the cheapest and least hazardous method available. However, any such transportation would require shipment in many cases from the east coast of the United States down through the Panama Canal and up to Hanford. Even though these spent elements will be shipped directly from one point in the United States on the east coast to another point in the United States on the west coast, it is our understanding that nuclear incidents which may occur while the elements are outside the territorial limits of the United States will not be covered by the present provisions of the reactor indemnity amendment.

Most spent fuel elements will be intensely radioactive. While the danger of accidental criticality will be substantially less than in a reactor the spent elements will have to be handled under more variable conditions than those under which they would be handled in a reactor. Thus, while being transported they will be exposed to potential accidents and environmental phenomena from which they would be substantially immune while in a reactor. Therefore, we believe that the risks involved in handling and transporting them may well be of the same order of magnitude as those which are involved in the operation of an actual reactor. As in the case of a reactor the probability of an accident occurring is extremely small but the potential damages in the event of an incident are extremely high.

Representative HOSMER. What environmental phenomena do you have in mind?

Mr. DAVENPORT. In the case of barge transportation by water outside of the territorial limits of the United States, typhoons, hurricanes, storms, and we have seen other environmental phenomena of similar types which might serve to sever towlines, upset barges, and that type of thing.

Representative HOSMER. It has nothing to do with the actual nuclear danger in and of itself?

Mr. DAVENPORT. No. Environmental in this context refers to conditions of the weather, if I may put it that way.

While precautionary measures would be taken to assure against an accident of any sort, neither we, nor, we believe, any other responsible company would be willing to undertake the risks potentially involved without some assurance of financial protection both to ourselves and the potential victims of any unforeseen accident. We are presently reviewing with our insurance companies the amount and cost of available insurance. However, we feel that, in addition, it would be essential to have available to us government indemnification, of the type now available under section 170 of the Atomic Energy Act in connection with domestic facilities, covering potential liability above the amount which we can insure against at reasonable cost.

Representative HOSMER. Do you have any idea what it would take to insure at reasonable cost?

Mr. DAVENPORT. As far as I know those questions with respect to these amounts now being discussed with the insurance companies have not yielded results.

Mr. COHEN. The insurance companies have not determined it as far as we know.

Representative HOSMER. You do not have an order of magnitude?

Mr. COHEN. We don't even know how much insurance would be available.

Representative HOSMER. Thank you.

Mr. DAVENPORT. In order to provide for such indemnity we believe that the definition of "Nuclear Incident" set forth in section 11 o. of the Atomic Energy Act should be amended to include occurrences within the United States or "during the course of transportation between locations in the United States." "During the course of transportation" might be defined in the same general manner as in the proposed licensee indemnity regulations of the Commission. That definition, generally speaking, covers transportation, including handling or temporary storage incidental thereto, provided that such transportation is not by predetermination interrupted by the removing of the material being transported from the transporting conveyance for any purpose other than the continuation of such transportation or temporary storage incidental thereto.

We respectfully urge consideration of such an amendment in order to remove a serious obstacle to pursuit of these first steps to entrance of private industry into the reprocessing field. We feel too that the proposed amendment would have the additional advantage of covering other water and air transportation of all nuclear components between the continental United States and its territories and possessions, as well as the new States—Alaska and Hawaii.

Second, we continue to be seriously concerned with our potential liability in supplying components for foreign reactors. Our own company has been confronted several times in the past year with serious obstacles to obtaining adequate protection against such potential liability in connection with specific supply contracts. In a report recently completed by Harvard Law School under the general auspices of the Atomic Industrial Forum the potential-liability problems involved and proposed solutions were reviewed in great detail. We agree with the conclusions of that report to the effect that ultimate solution of the problems involved for the American supplier lies in comprehensive international treaties providing for protection to industry and the general public in signatory countries at least as broad as that provided within the United States under our own Atomic Energy Act. I firmly believe that anything that can be done by our own Government to expedite agreement upon such international conventions and to provide for any incidental legislation in the United States to more effectively carry out their substance and intent will contribute materially to broadening the opportunities for participation in foreign markets by U.S. suppliers.

Mr. TOLL. When you say "at least as broad" you don't think there is any chance of getting these countries to put up a $500 million Government indemnity comparable to that in the Price-Anderson Act?

Mr. COHEN. In the Euratom draft there is some indication that the Euratom pool and possibly the individual governments will go above $100 million. It is conceivable that they would go to $500 million. I don't think we have the answer to that yet.

Mr. TOLL. We don't have to insist that it get up to $500 million. If they want to set $100 million, or some other reasonable figure, for the public in those countries that is their business.

Mr. COHEN. I think what we have posed here is the ideal. As a strict legal question from the U.S. industry point of view, as long as liability is limited to a figure within which we can obtain insurance at a reasonable rate, the question of indemnity above that limit becomes of relatively secondary importance.

However, from all points of view and particularly in the interests of the public, I think it would be best if provision could be made for unlimited coverage of some sort.

Mr. DAVENPORT. Finally, I want to reemphasize our previously expressed concern with the lack of indemnity coverage in connection with many Defense Department projects. In the absence of clear-cut indemnity authority with respect to such projects we and various arms of the Defense Department have been confronted with time-consuming and expensive negotiations and delays in our efforts to find a mutually satisfactory solution in specific Department of Defense agreements. In at least one such agreement which we are presently negotiating, no practical solution has yet appeared. In this context I strongly urge favorable consideration of legislation directed toward extending the benefits of the reactor indemnity amendment, or substantially similar benefits, to Department of Defense activities.

In conclusion, if either I or anyone else in our organization can be of any help to you or other members of the Joint Committee or the staff in connection with any of the problems I have suggested above or their resolution, we will be only too happy to make ourselves available upon request. I particularly would welcome the opportunity in any event to personally discuss in detail with any member of this committee or its staff the problems, which I have touched upon today, relating to our initial attempts to undertake services in the reprocessing field.

Representative DURHAM. Thank you very much, Doctor.

You have made a fine statement and we appreciate it. Certainly we will avail ourselves of your help before we solve all of these international problems. We will have to have a lot of advice and that is what we are trying to put together at the present time while we are considering these two amendments, and also to get the opinion from private industry throughout the country if there needs to be anything else done besides what the Commission is asking for.

Mr. Hosmer, do you have any questions?

Representative HOSMER. No. I want to say, however, that your recommendation respecting shipments by water through the Panama Canal, and so forth, changes the act it is true. Even though the shipment might be less costly and less hazardous I think the proposal should be evaluated in the light of possible risk and so forth. I would not want to buy that idea without much more study than we have this afternoon. I just make that as an observation.

Mr. DAVENPORT. We appreciate that point and would be very happy to have an opportunity to discuss the matter further and present some of the detailed studies we have undertaken at this time.

Representative HOSMER. We have a different problem when we are on the high seas from the west coast to Hawaii and a different problem, limited to one country only, in connection with shipments from Washington State to Alaska. It may be that those will have to be broken down into three problems.

Mr. COHEN. There is perhaps one other point that should be mentioned in that connection, and that is up to the present time as far as we know the railroads have indicated an unwillingness to accept for shipment any spent fuel elements, except of course under the emergency act where the Governement can compel such shipment.

As a practical matter the only way to ship them at this time may be by water.

Representative DURHAM. Thank you very much.

(The letter dated November 10, 1958, referred to on p. 100, and a subsequent letter dated May 14, 1959, from Sylvania-Corning Nuclear Corp. follow:)

SYLVANIA-CORNING NUCLEAR CORP.,
Bayside, N.Y., November 10, 1958.

U.S. ATOMIC ENERGY COMMISSION,
Washington, D.C.

(Attention: Director, Division of Licensing and Regulation.)

GENTLEMEN: Please accept my apologies for the delay in replying to your invitation for comments on the proposed amendments to the indemnity regulation.

Permit me, first of all, to thank you for the opportunity you have given to us to comment on these proposed amendments. I want to thank you in particular for the opportunity that I and other members of the forum ad hoc insurance group were afforded to discuss these problems with representatives of the Commission and the insurance industry in Washington. I believe that our meetings in Washington were quite productive and I hope of mutual benefit to all concerned.

I have attempted to set forth below first my comments on the major problems which I believe are posed by the proposed amendments. I have then set forth a number of miscellaneous comments and have concluded with one final point going, not so much to the nature of the coverage provided by the proposed indemnity regulation, as to the licensees who would be covered thereby:

MAJOR PROBLEMS

A. GAPS BETWEEN INSURANCE AND INDEMNITY

A study of the proposed nuclear liability policy (NELIA-MAELU) and the proposed indemnity agreement reveals several areas which might create a serious gap in coverage available to a licensee or other person indemnified under the Anderson-Price Act. Some of these gaps result from limitations in the scope of coverage of the insurance and indemnity agreements, while others result from circumstances which might accompany or follow a nuclear incident. A gap in coverage due to either of these conditions could result in less protection to the licensee, to other persons liable for a nuclear incident, and to the public.

I. Gaps in the scope of coverage of insurance and indemnity

The following areas represent some of the more serious potential gaps in protection resulting from the scope of risk covered by proposed insurance and indemnity agreements:

(1) Liability for damage to property may not be covered under the insurance policy to the same extent that it is covered under the indemnity agreement in the event one cannot prove actual physical damage or imminent danger of contamination of the property in question. It is conceivable that liability could be incurred as a result of damage to or loss of use of property short of actual physical destruction or contamination of such property.

The indemnity agreement provides coverage against legal liability with only two express exceptions: (*a*) war damage, (*b*) liability under workmen's compensation laws resulting from injury to employees at the site of installation. The insurance policy, however, provides coverage for legal liability because of bodily injury or property damage as defined in the policy.

Property damage is defined in the policy as: "physical injury to or destruction or radioactive contamination of property, and loss of use of property so injured, destroyed or contaminated, and loss of use of property while evacuated or withdrawn from use because possibly so contaminated or because of imminent danger of such contamination."

Presumably both agreements are designed to avoid responsibility for claims for diminution of property value based on the mere presence of a nuclear facility, but the restrictive language of the insurance policy would also seem to deny coverage in instances where a nuclear incident has occurred and harm traceable to the nuclear incident is sustained by property or businesses which had not, in themselves, suffered contamination or physical damage.

If the restrictive language of the policy regarding "physical damage to property is designed to avoid responsibility for claims based on the mere presence of a nuclear facility, it would seem that this exposure could be specifically excluded without limiting available coverage to physical damage to property. If the restrictive language is designed to avoid responsibility for other types of property damage claims resulting from a nuclear incident, it obviously creates a gap in coverage between the financial protection and the indemnity coverage.

(2) The insurance policy provides coverage for claims resulting from a nuclear incident occurring during the policy period and "for which written claim is made against the insured, not later than 2 years after the end of the policy period." The insurers may cancel the policy for any reason at all, subject only to 90 days' notification to the insured and the AEC.

The absolute right of termination reserved by the insurers creates a serious potential gap in protection when considered in conjunction with the 2-year limitation clause. The insured may well be held liable for claims asserted more than 2 years after a nuclear incident or after termination of the insurance policy. This is particularly so if any applicable statute of limitations is held to begin to run, not from the date of the nuclear incident, but from the date when radiation injury is first diagnosed. If the insurers were to exercise their unqualified right to terminate immediately following a major nuclear incident, it is quite possible that a large portion of the insured's liability would not be covered by insurance due to the operation of the 2-year cutoff provision.

The obvious solution to this problem, from the viewpoint of the insured and the public, is to eliminate the 2-year cutoff provision from the insurance policy, making insurers responsible for all claims resulting from a nuclear incident occurring during the policy period regardless of when claim is brought against the insured. This would leave the insurers with the same protection of applicable statutes of limitations, if any, that they have under all conventional types of third party liability insurance policies.

However, it must be recognized that delayed serious injury claims are more likely to occur in the nuclear field and the insurers are faced with a very real problem of determining potential liability and establishing realistic reserves for payment of future claims. This has been recognized in their rating technique for nuclear risks by establishing high premium charges and allowing for a retrospective return of premiums 10 years after each annual rating period if experience in the industry during the 10-year period warrants such return.

While a complete elimination of the 2-year cutoff provision may create insurmoutable problems for the insurers, it seems reasonable to suggest that the time limitation could be extended to at least 10 years, coinciding with the 10-year period selected by the insurers in their premium formula. This would still allow insurers to determine their liability under each policy after an established period of time, but would greatly reduce the chances of a serious uninsured loss at the expense of either the insured or injured members of the public.

(3) In addition to their unqualified right to terminate the insurance policy, the insurers also retain the right to suspend insurance with respect to the named insured or any other person or organization responsible for the continuance of a condition considered to be dangerous in the sole judgment of any representative of the insurers. Such suspension requires only written notice to the named insured and 12 hours prior notice to the Atomic Energy Commission.

Since such a suspension of coverage would, in effect, eliminate insurance protection for any nuclear incident occurring during the period of suspension, the licensee and the public could be left with far less protection than contemplated by the Anderson-Price Act.

If the insurers cannot remove the suspension clause in their policy completely, it would seem reasonable to suggest that a more realistic advance notice be given than the present 12 hours to the AEC. It is also difficult to understand why the same notice provision should not apply to the named insured or other persons affected by the suspension as applies to the Atomic Energy Commission.

(4) The insurance policy provides only a limited amount of coverage for liability assumed under contract rather than imposed by law. Accordingly, it represents a deficiency in coverage afforded by the proposed policy when contrasted to the coverage afforded by the proposed indemnity agreement.

(5) The insurance policy does not cover risks involved in the transportation of radioactive materials to a covered installation and this may give rise to a gap between insurance and indemnity. This is discussed below in detail in connection with indemnity coverage of transportation risks.

The above potential gaps in protection resulting from the scope of coverage provided by the proposed insurance policy can all be resolved or greatly reduced by appropriate action on the part of the insurers. Some of these potential gaps, such as those given rise to by the suspension provisions, may be minimized by appropriate application of the Commission indemnity as discussed in greater detail below. However, it is difficult to conceive of a means of removing all of these inherent gaps in coverage through any application of the Commission's indemnity. Solution of these problems through appropriate changes in the insurance policy would go a long way toward establishing a program of financial protection of the kind contemplated by the Anderson-Price Act.

II. Gaps arising as a consequence of nuclear incidents

As mentioned previously, there are other potential gap areas which would occur only in connection with a series of occurrences or as a result of certain circumstances accompanying or following a nuclear incident. Two of the major problems in this area result from the reinstatement and common occurrence provisions of the nuclear liability policies and are discussed below:

(1) While the liability of the Commission under the proposed indemnity agreement is on a per incident basis, the liability of the insurers under the nuclear liability policy is on an aggregate basis for all incidents at the insured facility. Thus, any payment made by insurers automatically reduces the total coverage remaining available under the policy. A succession of claims from normal operation or minor incidents could conceivably seriously impair the amount of financial protection available for a subsequent incident. The licensee is required under the indemnity agreement to apply for reinstatement of this insurance, but nothing in the policy commits insurers to grant the reinstatement either within a given period or at any future time. On the other hand, the presently proposed indemnity has a fixed floor based on a dollar amount of financial protection initially required of the licensee.

In its presently proposed form the floor of the indemnity would not descend to meet the actual amount of coverage that might be available under the insurance policy. Therefore, it is possible that the effective amount of insurance at any time could be less than the required amount of financial protection and the liability falling within this created gap would be covered by neither insurance nor indemnity.

Several possible remedies for this problem readily suggest themselves. Some of these remedies might be equally applicable to a gap created by complete termination or suspension of an applicable policy by the insurer. Alternative (*d*) would certainly lend itself as well to the solution of the problems created by such a gap.

(*a*) The insurance policy could be amended to provide for complete and automatic reinstatement of coverage, as is done in most conventional insurance policies. Such a suggested remedy does, however, present serious problems to the insurers. The net result could well be to effectively place the coverage on a per incident rather than aggregate basis and thereby possibly commit the insurers beyond their available $60 million capacity as a result of a series of incidents at a given reactor site.

(*b*) Alternatively, the Commission could agree to automatically reduce the amount of financial protection required, and thus the effective floor of the indemnity, as the effective insurance under the policy is reduced by payment

of losses and expenses. This, however, would appear to involve a discrimination against those licensees who elect to be self-insurers for those risks covered by financial protection requirements. In any event, there would presumably have to be a further requirement for reinstatement of financial protection when it again became available to the licensee. Otherwise there would be little incentive on the part of the licensee to obtain reinstatement and pay the cost of same.

(*c*) It is at least arguable that the reactor operator should self-insure, that is, indemnify the public, to the extent of the gap created by an incident pending reinstatement of the insurance, since he continues to operate the reactor for his own benefit. This approach has a major disadvantage, however, wherever the incident in question or the extent of the liability resulting from it is unknown. For in such a situation the reactor operator would be required to bear a liability of unknown extent.

(*d*) The most reasonable solution would seem to call for the Commission to word the indemnity agreement to require the licensee to make all reasonable efforts to obtain prompt reinstatement in the event insurance coverage is reduced below the amount of financial protection required, and to have the floor of the indemnity descend to meet the reduced amount of insurance for a reasonable period of time pending such reinstatement. This solution also seems to accord best with the statute which provides that the "amount of financial protection required shall be the amount of liability insurance available from private sources, except that the Commission may establish a lesser amount * * *." I feel that it is a fair reading of section 170(b) of the act to conclude that the amount of financial protection is intended to be a flexible amount depending upon the insurance available to the individual operator at any given time. Accordingly I believe that it would be consistent with the legislative intent to provide that, in the event of a reduction, due to payment of claims or otherwise, in the amount of applicable insurance, which could not be immediately reinstated, the amount of financial protection available would thereby automatically be reduced and the applicable indemnity necessarily apply above the limit of the reduced amount of financial protection.

If reinstatement cannot be obtained from the insurers within a reasonable period of time as determined by the Commission, then alternative means of continuing financial protection would have to be found. It would neither appear unreasonable nor inconsistent with the intent or wording of the act for the Commission to extend its indemnity to cover the liability exposures created by the reduction of insurance under such circumstances since insurance protection would not then be available to the licensee due to the insurers' refusal to reinstate coverage under the policy.

Provision similar to the foregoing might also be made for any self-insurer who wishes to switch to outside insurance after an actual loss has occurred. In any event, the foregoing approach would assure against unnecessary and expensive shutdowns without removing the incentive to reestablish the original financial protection. At the same time it would assure the public and suppliers of adequate protection in the event of an incident between the time the original insurance is reduced and the deadline for reinstatement.

(2) Condition 4, "Limitation of Liability—Common Occurrence" of the proposed nuclear liability policy is intended to restrict the total liability of insurers in connection with certain types of incidents having a cumulative nature.

As proposed in the proposed regulation, liability of insurers resulting from an occurrence or a series of occurrences involving nuclear material in the course of transportation or resulting from a discharge or dispersal of such material from one or more reactor sites is limited to the highest applicable limit of liability of any one policy which might apply to such a series of occurrences. Such a limitation would pose the possibility of serious and unnecessary gaps in coverage in situations as where several reactors contributed to the contamination of one source of water supply, and the largest applicable policy is less than $60 million although the aggregate of all applicable policies exceed that amount. Any incident or series of incidents occurring in the course of transportation or resulting in the discharge or dispersal of nuclear material from a reactor site or sites could result in a similar gap between the insurance and indemnity protection.

Happily, I understand that further revised drafts of the NELIA-MAELU policies (released after the publication of the Commission's proposed regulations) have attempted to meet this problem by amending condition 4 to accept liability up to the full capacity of the pools; I understand that provision is made

in the amended versions for acceptance of maximum liability up to the amount of the lesser of: (1) The total limit of liability under all policies involved, or (2) the maximum capacity of the pools.

Since this would place insurers in the position of making available their full capacity for a common occurrence it seems only logical that the Commission's indemnity should be drawn to come down and meet the insurance at this level in the event of a common occurrence involving two or more licensed operations. Since the indemnity's upper limit and floor are both tied to a per incident basis, it seems quite reasonable to suggest that a common occurrence definition be inserted in the indemnity agreement. Such a provision, if geared to the provision employed by the insurance policy, would make it possible for the required level of financial protection to be automatically adjusted to conform with the maximum liability of insurers in the event of a common occurrence type of nuclear incident.

It is quite evident that some provision will have to be made to adapt the floor of the indemnity as expressed by the required amount of financial protection to mesh more closely with the maximum liability which is to be retained by insurers as a result of the reinstatement and "common occurrence" provisions of their proposed policy. To leave the required amount of financial protection on a pure dollar basis in light of the position taken by insurers creates a serious possibility of uninsured losses of sizable magnitude, with the result that neither the public, the licensee nor his suppliers will be protected to the extent contemplated by the Anderson-Price Act.

B. COMMENTS ON PROPOSED AEC INDEMNITY AGREEMENT

I. Risks during period prior to operating license

The proposed amendment to section 140.17 of the AEC Indemnity Regulation provides that the indemnity agreements to be entered into by the Commission with reactor licensees shall be effective on:

1. The effective date of this part; or
2. The effective date of license authorizing the licensee to operate the nuclear reactor involved, whichever is later.

This wording of the proposed regulation presents two problems:

(1) Under the proposed amendment the Government indemnity, and the requirements of full financial protection, would be effective on the date of issuance of the license authorizing operation of the reactor. This might place an unduly heavy burden on the reactor operator, who would be required to maintain full financial protection well in advance of actual startup of the reactor, which in the usual case will not take place until sometime after the license issues.

(2) At the opposite end of the spectrum the requirement of financial protection and application of the indemnity may not apply early enough. As a matter of practice, it is frequently necessary or expedient for the reactor operator to have products such as fuel elements shipped to the reactor location prior to the time that an operating license is obtained. Under the proposed regulations nuclear risks during the course of transportation to the reactor location would be covered once the reactor operating license issues. It would certainly seem that these nuclear risks during the course of transportation or, for that matter, nuclear risks at the reactor site itself, would be no less prior to the issuance of the operating license than the same risks would be during the course of transportation to a reactor which is in actual operation.

Several possible solutions suggest themselves to the foregoing problems. The second problem might, of course, be resolved by requiring a full operating license to issue prior to the time of shipment of any products containing source or special nuclear materials to the reactor site. However, such a policy would either encourage a decision not to accept such products prior to the issuance of the license despite compelling business and technical considerations to the contrary or would require the operator to carry the full burden of financial protection prior to the time that full operating risks are incurred. The latter possibility would aggravate the already serious financial burden which is imposed by the present wording of the proposed amendment.

A more practical solution which might take care of both of the foregoing problems is suggested by the provision of section 170(a) that all construction permits issued under section 185 shall have, as a condition of the permit, a requirement of financial protection thereby entitling such permit holders to

statutory indemnity. In view of the reduced risk during the construction period, it would seem that any requirement of financial protection, as a condition to the issuance of the construction permit, should certainly be no higher and perhaps a good deal lower than the requirement of financial protection with respect to the smallest research and development reactor. Provision might be made additionally for the construction permit holder to enter into a commitment that financial protection will be increased on a predetermined scale based upon the amount of source or special nuclear material contained in products delivered at the site. The amount of financial protection required of the construction permit holder or the licensed operator should presumably not reach its maximum until such time as operation of the reactor actually begins. Since, under AEC procedures, the operator licensee apparently must obtain a special authorization before loading the reactor with fuel, a convenient and effective technique is already in existence for determining the time when full financial protection should be required.

II. Risks during the course of transportation

Section 170 of the act provides that the Commission's indemnities under that section will cover public liability "arising out of or in connection with" the licensed activity unless such public liability arises out of or results from a nuclear incident which occurs at the (facility) location or "in the course of transportation." The problem of "location" is discussed elsewhere in this memo. "In the course of transportation" is defined in paragraph 3 of article I of the proposed AEC indemnity agreement as including transportation, "within the United States, including handling or temporary storage incidental thereto, of the radioactive material to the location or from the location." A proviso makes clear that coverage is provided only for uninterrupted transit between (i.e. to or from) the reactor site and the nearest point at which any predetermined interruptions for other than the continuation of such transportation or temporary storage incidental thereto take place.

From the foregoing, it seems clear, first of all, that there will not be included within the meaning of the phrase "in the course of transportation" as used in the proposed AEC regulation transportation of raw material to the conversion plant and from the conversion plant to the fuel element plant and so forth, since these constitute points at which major interruptions in the transit of materials take place. The only stages which would appear to be covered by the statutory indemnity would be transportation from any such plant directly to the reactor location itself and thereafter transportation from the reactor location directly to any other given destination. The proposed Nuclear Energy Liability Policy is still more limited in its coverage. While the proposed policy also provides coverage for risks during transportation from a covered location, it limits coverage during transportation to the location to transportation from a facility owned by the U.S. Government.

Thus risks to the public during shipment from a private supplier directly to the reactor location would be covered by statutory indemnity, but such risks would be covered under insurance offered by the syndicates only to the extent that the private supplier maintains in effect his own Nuclear Energy Liability Policy. Since under current AEC policy there is no requirement that the supplier shipping to the reactor location maintain financial protection, unless he happens to operate a reactor as well, and since the indemnity relating to the reactor location and transportation thereto applies only above the amount of financial protection required of the reactor operator, there may be a substantial gap in coverage during the course of transportation to the reactor location.

At first blush, the solution to this problem would appear to lie in amendment of the proposed insurance policy to cover transportation to, as well as from, a covered facility. However, the insurers have pointed out that such coverage in all facility policies could result in pyramiding of the amount of coverage for any given incident beyond the maximum funds committed by the insurance syndicates. With this problem in mind, an alternative solution suggests itself. The policy might be amended to provide for coverage on any shipment to or from a location with a proviso that in the event of two facility policies covering the same risk, the maximum liability of the companies under all policies would not exceed the lower of the following: (1) The aggregate amount of all applicable policies or (2) the total amount committed by the insurance syndicates for any one nuclear incident. The technique of limiting total coverage under several policies to the lower of the aggregate of the policies or the total amount

committed by the syndicates is virtually the same as the technique presently used under paragraph 4 of the conditions of the proposed insurance policy, as recently amended, in connection with common occurrences. Still another alternative would be to limit coverage under all applicable policies to the amount of the highest applicable policy. The important point is that the gap between private insurance and Government indemnity should be somehow removed with respect to transportation of radioactive materials to the reactor location.

III. The section 53e(8) problem

Paragraph 5 of article II provides for an indemnity from the licensee to the Government generally in the language of section 53e(8) of the act. The effect of this language as enacted in the 1954 act has always been highly doubtful. In addition, the effect of the amendment of section 53e(8) by the Anderson-Price Act is also doubtful. That amendment qualified the requirement that licensees hold the Government harmless from damages resulting from the use or possession of medical nuclear materials, by prefacing the requirement with the words "except to the extent that the provisions of section 170 apply * * *."

One reading of section 53e(8) as amended is that it does not apply in any case where the Commission, pursuant to section 170, requires financial protection and provides indemnity. This is certainly a natural and reasonable reading of the "except" clause added by the Anderson-Price Act.

The proposed indemnity agreement form adopts the alternative reading, namely, that section 53e(8) in its present form requires the licensee to indemnify the Government within the limits of the required financial protection (pars. 5 and 6 of art. II). To this extent, the agreement would constitute an administrative construction of the act, and since it will have to be accepted by licensees, perhaps a practical construction by industry as well. Inclusion of paragraph 5 of article II may, therefore, enlarge the scope of section 53e(8) beyond that which a court might be inclined to give it if the indemnity agreement were silent on the point.

On the other hand, the Government's rights need not be impaired by omission of proposed paragraph 5. If section 53e(8) has the effect assumed in that paragraph, the statute should have that effect in any event. Accordingly, I believe that the Commission should consider omitting paragraph 5 stating, if it wishes, that this omission is not intended as a construction of section 53e(8) one way or the other.

If, on the contrary, the Commission feels obliged to construe section 53e(8) in the manner indicated in paragraph 5, then consideration should be given to further interpretation which would clarify the scope of the indemnity. Does the indemnity apply to damage to Government property? Does it apply to the Government's liability to third persons? Does it constitute a release of the Government by the licensee from liability which the Government might otherwise have to the licensee? Does the indemnity cover cases where the Government is at fault? Does the indemnity apply to Government property other than special nuclear material?

To the extent that by reason of section 53e(8) some positive obligation to the Government is imposed on the licensee it is important that the NELIA-MAELU policies be clarified to make coverage for that obligation explicit. For practical and legal purposes, the section 53e(8) obligation, whatever it is, is imposed by law rather than assumed by contract. However, particularly in the light of the inclusion in the proposed agreement of paragraph 5 of article II, an argument (concededly not too plausible) could be made that the NELIA-MAELU policy does not apply to the section 53e(8) obligation because it is assumed by contract (see exclusion [c]). Clarification of the NELIA-MAELU policy in this respect would be helpful.

IV. Liability for damage to the reactor and other onsite property

In article III, section 1 of the proposed indemnity agreement, the Commission undertakes to indemnify the licensee and everyone else against public liability, which is defined in article I, section 6, as any legal liability growing out of a nuclear incident except workmen's compensation claims of workmen at the reactor site and claims arising out of an act of war. In addition, under article III, section 2, the Commission undertakes to protect, directly, "persons legally liable" for a nuclear incident against damage to their own property to the same extent as though the property had belonged to another. This direct protection of "persons legally liable" does not, however, apply to "excluded prop-

erty," which is defined in article I, section 6, as property located at and used in connection with the licensed activity.

Under this dual scheme of coverage, a reactor operator who was solely liable for a nuclear incident would be protected against all legal liability to others resulting therefrom and would in addition have a claim against the indemnity for any damage to his offsite property. He would have no claim against the indemnity for any damage done the reactor itself. If, however, he could establish liability to him on the part of a supplier or other person for damage done to the reactor, the liability of the supplier or other person for such damage would be covered by the indemnity. Thus, the definition of excluded property in article VI, section 1, applies only to the coverage of the property of persons legally liable; it has no effect on the definition of public liability and, consequently, does not restrict the coverage of liability under the indemnity to offsite property alone.

The major questions posed by the regulatory scheme stem from the proposed coverage of liability for damage to the reactor installation. The first question is one of statutory interpretation. The act first provides that "public liability" shall mean all legal liability except for certain workmen's compensation claims and claims arising out of an act of war. It then goes on to provide in a second sentence:

> "Public liability" also includes damage to property of persons indemnified: *Provided*, that such property is covered under the terms of the financial protection required, except property which is located at the site of and used in connection with the activity where the nuclear incident occurs.

Certainly on this language alone, the most reasonable interpretation is that the except clause is intended to modify the clause immediately preceding it. Thus, the sentence as a whole appears to mean that public liability includes damage to all property of persons indemnified, but that property which is not located at the site of or used in connection with the licensed activity will be covered only if it is also covered under the terms of the financial protection required. However, from a purely subjective point of view, it may be agreed that there was and is substantial indication of a legislative intent not to include within the indemnity protection liability for damage to onsite property. Given this assumption and the additional problems given rise to by any contrary interpretation, it might be most expedient for the Commission to avoid any administrative interpretation of this point leaving its ultimate interpretation to the courts or to further legislative action.

On the other hand, as noted above, the clear import of the statutory language cannot be totally disregarded. If the maxim of statutory construction is to be followed that where the meaning of a statute is plain, the legislative history may not be consulted, the Commission's interpretation of the statutory language is undoubtedly correct. Furthermore, from a purely objective point of view, the legislative history itself is not unambiguous on the point in light of earlier drafts of the act and intermittent testimony thereon. Thus, viewed objectively, as, for instance, from the point of view of a licensee who has not had prior occasion to participate in the formulation of the act or otherwise viewed as a question of original jurisdiction, it is difficult to gainsay the conclusions and result which the Commission has reached.

Recognizing the substantial considerations on which the Commission's interpretation is based, I would merely like to note that the statute as so construed, does raise some substantive problems. The first problem is the possibility that the coverage of liability for damage to the reactor may be a deterrent, at least in cases where a minimum amount of financial protection is required, to the purchase by licensees of physical damage insurance. The second is that, in the event of a very serious nuclear incident, the protection afforded the public by the Government indemnity would be diluted by claims for damage to the reactor, including loss of use thereof. If Congress adhered to the $500 million limitation on the amount of indemnity, the amount of dilution could be substantial.

However, the Commission's interpretation also has important advantages. The problem of liability for damage to the reactor remains the most serious single problem of coverage in this field. I would like to reemphasize in this respect the testimony of Dr. Davenport before the Joint Committee on March 27, 1957. At that time he emphasized the need, consistent with the operation of the act, for protection of suppliers against potential liability for damage to property at the reactor site. As we have pointed out in the past, in the event of a serious incident, damage to the reactor site might well exceed the assets

of all but the very largest corporations. In view of the corrolary purpose of the act to protect industry against catastrophic liability risks and thereby to induce its full participation in the development of economic nuclear power, I think that protection of the supplier in this respect is essential.

At the present time there is no way in which a supplier can insure against liability for damage to the reactor installation. His only protection is a waiver of liability on the part of the operator. Even for the prime supplier to secure such a waiver may be difficult. For remote suppliers, who will have no opportunity to deal directly with the operator, there is substantial doubt whether such a waiver will be obtained. A partial solution of the problem would be supplied by a waiver of subrogation by the property damage insurers; however, to date they have not agreed to waive subrogation, although they will permit the operator to waive his claims against suppliers. But even if the insurers would agree to waive their rights directly, the problem of the suppliers would not be completely solved. In some jurisdictions, the operator might be able to secure a double recovery, i.e., he could recover both from his insurers and from a supplier. In addition, damages for loss of use, which might be very serious indeed, are not presently covered by the physical damage policy and a waiver by the insurers would not give suppliers any protection against liability for loss of use.

Under these circumstances coverage by the AEC indemnity of a supplier's liability for damage to the reactor is clearly helpful to suppliers and partially meets one of the principal remaining problems of coverage. But it is only a partial solution; for the supplier remains unprotected against liability for harm to the reactor up to the level where the Government indemnity protection begins. A more complete solution to the problem of the suppliers is suggested by article II, section 3, of the proposed indemnity agreement. By that paragraph, the Commission requires licensees who satisfy the requirement of financial protection other than by purchase of a syndicate policy, to indemnify all others against public liability, including liability for damage to the reactor, up to the level of financial protection required. Assuming the correctness of the Commission's interpretation that public liability includes liability for damage to the reactor, there would not seem to be any obstacle to requiring as part of the financial protection requirements that all licensees, whether they satisfy the requirement of financial protection by purchasing insurance or otherwise, hold all others harmless for damage to the reactor property. If, in addition, the nuclear property damage policies could be amended to provide coverage (including possible loss of use) for all who might be liable for damage to property at the reactor site, such policies might be permitted to be substituted for a hold harmless from the licensee. In either event, this technique has the substantial advantage of not diluting the $500 million available for payment under the indemnity agreements by the necessity of reimbursing from that fund claims for damage to property at the reactor site.

V. The definition of nuclear incident and location

Under section 170(c) of the Anderson-Price Act it is provided that the Government indemnity shall cover public liability arising out of or in connection with the licensed activity. Under the proposed regulations (see art. II, par. 3 and art. III, pars. 1 and 2) the protection afforded by the indemnity is confined to nuclear incidents occurring at the location or in the course of transportation. The specific problems raised by the definition of "in the course of transportation" are treated elsewhere herein; my concern here is with the wisdom or necessity of the Commission's narrowing the coverage afforded by the statute. While we may agree that the likelihood of liabilities being imposed in situations not covered by the indemnity is small, it does not follow that the indemnity should be tailored to cover only the more probably contingency, especially when the possibility that there may be substantial uncovered liability is increased by the fact that to date the Commission has not indicated it will cover any facilities other than reactors. I would therefore suggest including the location and transportation as examples only.

Other problems are raised by the words "at the location" in light of the definition of "nuclear incident" as an "occurrence." The first problem is that neither the statute nor the regulations indicates whether the situs of a nuclear incident is the place where the radioactive material escapes or the place where the damage is done. I believe that the intention of Congress in this respect is clear that the situs should be the point of escape of radioactive material. Congress could hardly have meant to provide an indemnity of $500 million against each

separate instance of injury; it must have meant the indemnity to apply to the event emanating initially from the reactor site, e.g., a reactor runaway or a flow of radioactive material from the reactor (whether or not ultimate contamination takes place at the reactor site) which gave rise to all of the damage. It would seem wise to make that interpretation clear in the proposed amendments. Such an interpretation should, however, be careful to distinguish the single, dramatic occurrence from the gradual creation of a condition of contamination. Such a condition might arise as a result of the gradual escape of radioactivity from a reactor with no damage being done until a substantial buildup occurred. Again, although on the surface the conclusion may appear inconsistent with my belief that Congress intended the nuclear incident to be determined by what emanated from the reactor location, it seems clear that Congress intended the buildup of a contaminated condition to be regarded as a single nuclear incident.

A more difficult case is created by the possibility that such a condition could be the result of the discharge of radioactive materials from a number of different reactors. While it is not clear that Congress had this possibility in mind, I feel that the proposed amendments should make clear that such a condition should be regarded for the purposes of the indemnity as a single nuclear incident. Such an interpretation is desirable not only from the point of view of industry (since the insurance policy specifically provides that only one policy will cover in such an event) but also from the point of view of the Government, which might, on another interpretation, find itself liable for more than $500 million.

Given a revised definition of nuclear incident, many of the problems which might otherwise arise from a narrow interpretation of the phrase "at the location" will probably be solved. Nevertheless, situations might arise in which an escape of radioactive material takes place at a point outside the geographical limits as set forth in the declaration but might not be covered within the definition of "in the course of transportation." I feel that although the Commission will want to define the location precisely in each case, it should be made clear that for purposes of determining the situs of a nuclear incident, any associated activity which might fall outside the location as specifically described in the declaration attached to the indemnity agreement should nevertheless be regarded as having occurred "at the location."

VI. Article IV of the proposed indemnity agreement

From the point of view of the atomic industry, the major problem posed by the provisions of article IV is that of possibly conflicting duties: To the private insurers under the terms of the insurance contract, and to the Atomic Energy Commission under the terms of the indemnity agreement. At best, the existing provisions will result in duplication of effort; at worst, they could put the licensee or other person indemnified in the position of having to try to serve two masters. So far as I can see, there can be no overall solution to the problem absent the establishment of a standard operating procedure to govern all nuclear incidents. From the point of view of industry, such a standard operating procedure should include at least these basic minimum characteristics:

First, a provision whereby industry would have to report to only one agency (this requirement might be modified to provide that both the insurers and the Commission be notified of the occurrence of a nuclear incident).

Second, the coordinated agency should have clear authority to act on behalf of the insurers and the Commission so that there would be no question on the part of industry of a possible conflict of interest between the insurers and the Commission.

Third, provision should be made for direct payments of claims by the insurers and the Atomic Energy Commission once a particular claim is established, whether by litigation or by settlement; it should be clearly understood that there is no obligation on the part of the defendant companies to make payments in the first instance and then seek reimbursement of those payments.

Such a coordinated standard operating procedure would be of benefit not only to industry but would be of great benefit to the public; in the event of a substantial nuclear incident, it will be imperative to provide as quick a means of disposing of claims as is possible. Absent coordination and a standby arrangement for investigation of claims, there is bound to be some frustration of the objective of the statute to provide maximum protection to the public.

It would seem to make good sense for any plan to contemplate using the facilities of private insurance adjusters throughout the settlement process. I

will not try here to suggest specific ways in which the possibly conflicting interests of the Commission or the insurers can be resolved. I do feel however, that such conflicts should be resolved between the insurers and the Commission and should not be allowed to frustrate in any way the basic purposes of the act.

One final major point not taken up in our discussions in Washington warrants attention. Under the proposed amendments the supplier would probably not be covered in the event that a reactor otherwise covered by statutory indemnity is transferred to a new owner subsequent to August 1, 1967. Although the indemnity under the original license agreement might well have extended beyond that date, the new owner and licensee would not be entitled to any indemnity unless the original license is also transferred. Yet, the new licensee would in all probability continue to use fuel elements supplied to the original owner at a time when there was an applicable statutory indemnity. I believe that it was the intent of the act to cover both suppliers and the public for any liability which might arise from the operation of the reactor during the period of any license which might issue prior to August 1, 1967. I do not think it was the intent of the act that such protection should terminate merely due to a fortuitous change in ownership of the original reactor subsequent to that date. In the contract program paragraph 3(iv) precludes such a result. While the provisions of that particular paragraph might well be too broad in some respects, I think that the protection afforded by it to suppliers and the public with respect to any given reactor irrespective of the termination of a particular contract is consistent with the legislative intent, and that similar protection should be afforded under the license program.

MISCELLANEOUS POINTS

1. In addition to the major points covered above, I would like to reiterate a number of other points which were brought out at the sessions in Washington.

2. I would suggest that the words "by predetermination" or similar language be included in the second proviso of the definition of "in the course of transportation" as in the first proviso. As the language now stands, a transportation accident or some other event might result in the intentional removal of material from the transporting conveyance and the simultaneous or subsequent release of radioactivity. Although I do not believe it is the intent of the present wording to exclude injury resulting from such release, it could be so construed.

3. I would suggest that the present definition of "radioactive material" be amended to make clear the apparent intent that risks prior to receipt of the material by the licensee, including the transportation risk prior to arrival of the nuclear material at the reactor site, are covered.

4. I would also suggest that the definition of "radioactive material" should be rephrased to make clear the intent to cover nuclear material inserted in a test reactor for testing purposes even though such material is not actually used "for the purposes of operating" the reactor.

5. I would suggest that in order to clarify the Commission's intent to honor liability claims whether or not the licensee should become bankrupt or insolvent, an insolvency clause similar to that provided in the proposed NELIA policy be added to the indemnity agreement. This would further eliminate the possibility of any argument that liability on the part of a person indemnified would be wiped out and that therefore there would be no public liability which would be covered by the Government.

6. I would also suggest that article IV be reviewed with a view to ascertaining that it refers to the proper party in each case. Use of the word "licensee" only, appears to be too restrictive in many cases.

7. I would suggest also that rather than requiring the licensee to submit copies of all contracts of insurance covering damage to property, the obligation might better be put in terms of furnishing insurance policies only upon request of the AEC. This would permit flexibility as to what might be required in all cases and avoid the necessity for submitting many contracts of insurance which would have no connection with the nuclear damage for which coverage is provided under the indemnity.

8. In paragraph 3 of article IV I think it is unclear as to whom it must "appear" that the Commission may be required to make payment. I would suggest that the language refer back to the Commission determination envisaged by paragraph 1 of article IV.

9. I would suggest that the prohibition presently incorporated in paragraph 5 of article IV against assignments should be limited, if legally possible, to voluntary assignments.

10. It is my understanding that the clause which reserves the right of the Commission and the licensee to amend the agreement was intended to cover special situations applicable to individual licensees; further, that no amendments will be made except through formally issued orders, licenses or regulations as provided in section 140.17. It is only in this way that the interests of suppliers and the public would be protected against privately negotiated changes in the agreement strictly between the Commission and the licensee.

LICENSEES TO WHOM COVERAGE IS EXTENDED

The foregoing comments relate primarily to the effect of the proposed insurance policy and regulations on those who are covered by their terms. No effort has thus far been made to comment on whether or not the indemnity policy of the Commission, as reflected in the proposals, is sufficiently broad in its coverage to accomplish the purposes of the Anderson-Price Act.

Few would disagree that the intent of the act was to protect both industry and public with respect to activities which might involve the risk of public liability for a substantial nuclear incident. In the light of this objective, the drafters of the act apparently determined that certain licensed activities having to do with "production and utilization facilities"—those licensed under sections 103, 104, and 185—necessarily involve such a risk and a requirement of financial protection and indemnity is therefore made mandatory in connection with those activities. It is left to the discretion of the Commission to determine what risks may be involved in connection with the possession and use of nuclear materials under sections 53, 63, or 81 licenses and in connection with activities of the Commission's contractors. Neither existing regulations of the Commission, however, nor the proposed indemnity agreement provide for Anderson-Price coverage except to reactors. Other licensed activities, such as those associated with fuel processing and conversion, fuel element fabrication, are not therefore under existing or present proposed regulations entitled as of right to Government indemnities. Apparently the Commission has not yet concluded that such activities involve risks of public liability great enough to clearly warrant coverage.

Regarding the Commission's ultimate policy pursuant to the act, I believe that a study of risks involved in other licensed activities along the lines of the Brookhaven reactor hazards study would be invaluaable in determining which such activities involve hazards sufficiently great to justify statutory coverage. Only through an exhaustive technical study of this sort can an authoritative and generally acceptable finding be made as to whether other activities as well as reactor operations involve hazards of incidents which may do widespread damage to the environment.

Even assuming the competence of any such a hazards study, however, the Anderson-Price Act itself is founded on the premise that it is virtually impossible to estimate accurately in all cases the amount of damages which may result from a nuclear incident. Expert testimony has been consistent to the effect that even the most careful study may be subject to miscalculation. It may be agreed that the Commission ought not to be troubled with minor incidents, nor does the public interest necessarily require indemnity with respect to all such incidents. However, it ought to be possible to get general agreement that any incident involving more than some given predetermined figure necessarily involves substantial hazard to the public. And, it would appear that a good deal of guesswork as to what may or may not constitute a substantial hazard to the public could be eliminated by providing, as a supplement to existing Commission policy, that any licensee whose activities involve the use of more than minimal amounts of radioactive materials, shall nevertheless be required to enter into indemnity agreements providing that Government indemnity shall come into play only if a nuclear incident in fact occurs which involves liability in excess of the predetermined figure. In the event of an incident involving liability in excess of the predetermined figure the statutory indemnity should then apply immediately above the amount, if any, of financial protection required, irrespective of whether or not that amount is greater or less than the predetermined amount of liability necessary to bring the indemnity into effect.

It is recognized, of course, that such a policy will present problems. One which immediately comes to mind is the question of advance determination of

the point at which it appears the Government may have an interest in litigation relating to a nuclear incident. However, this problem is not substantially different from the problem the Government is already faced with in connection with the currently proposed indemnity agreements.

A more serious problem is the question of the effect of the financial protection requirement provisions of section 170 upon any such policy. One possible solution lies in a minimum requirement of financial protection for each class of sections 53, 63, or 81 licensees. The amount required of any individual licensee might be greater than the minimum based upon application to the individual situation of the criteria established in section 170(b) and by Commission regulations.

There may well be additional problems in implementing a policy of the type suggested. However, if the basic purpose of the act is to protect the industry and the public against any unforeseen substantial nuclear incident is to be achieved, there is an urgent need for some such policy.

I hope that the foregoing and attached comments will be of some help to you in developing a workable final indemnity regulation and approved form of financial protection. If I can be of any further help, please do not hesitate to let me know.

Very truly yours,

HOWARD M. COHEN,
Secretary and Counsel.

SYLVANIA-CORNING NUCLEAR CORP.,
Bayside, N.Y., May 14, 1959.

Congressman CARL T. DURHAM,
Vice Chairman, Joint Committee on Atomic Energy,
U.S. Congress, Washington, D.C.

DEAR CONGRESSMAN DURHAM: In the course of Dr. Davenport's and my own testimony before you and Congressman Hosmer on April 30 on the indemnity program, I answered rather briefly two questions, one from Congressman Hosmer and one from Mr. Toll. In view of the lateness of the hour, both Dr. Davenport and I were reluctant to go into any further details at the time. However, both Dr. Davenport and I feel that the answers to both of these questions, together with one other point, need further clarification. I shall attempt to so clarify them below and would appreciate it if this letter could be entered as a supplement on the record to Dr. Davenport's and my own testimony.

The first point was raised by Congressman Hosmer in connection with our objection to the 90-day limitation in the Commission's proposed amendment granting authority to bring the statutory indemnification down to the level of insurance in effect after payment has been made on any given claim. We suggested that if in fact insurance is not available even after the expiration of the 90-day period it would appear to be the intent of the indemnity provision as a whole to require that the indemnity be brought down to the level of insurance actually available to the licensee. Congressman Hosmer indicated his belief that any such policy would remove any incentive for the insurance companies to reinstate the policy to its original amount. As a practical matter the circumstances under which the insurance syndicates may refuse to reinstate cannot be entirely foreseen. Under certain circumstances there may conceivably be substantial disagreement between the insurance companies and the Commission and the operator as to the cause of the accident requiring payment or as to the risk involved in continuing operation of the reactor. It is entirely conceivable that the Commission and the operator will firmly believe that the risk of continued operation is not substantial in light of the overall advantages to be gained for the development program while the insurance companies in the exercise of their independent judgment will consider it unwise to assume such risk. Under the Commission's proposed amendment and given the foregoing circumstances the insurance companies would nevertheless be in the position of in effect causing a shutdown of the reactor if in fact they refused to reinstate the policy within the 90-day period. The insurance companies would thereby be given a degree of control over significant aspects of the power development program which I believe they themselves would be most reluctant to have imposed upon them. At the same time it is difficult to see how the 90-day provisions will supply any substantial additional incentive to reinstatement of the insurance. It would appear that the incentive of the

insurance companies to reinstate would rather derive from either (1) their desire to sell insurance, or (2) the desire to keep the Government out of the insurance business. Both of these motives would seem to be more effectively stimulated by a realization that the Government would bring its indemnity down to the level of actual available insurance rather than by the present provision which in effect might require a shutdown of the reactor if reinstatement is not available.

Subsequently, Dr. Davenport in his testimony urged our Government to take all possible steps to expedite agreement upon international conventions that would provide for protection to industry and the general public in signatory countries at least as broad as that provided within the United States under our own Atomic Energy Act. Mr. Toll raised a question as to whether United States industry or the U.S. Government should take any position with respect to the amount of protection which might be made available to the general public in foreign countries. He questioned in particular whether this would affect the potential liability problems of American suppliers. In reply to his question, I stated that, from the viewpoint of industry's legal position, if any such treaty and supplemental legislation pursuant thereto provided for a limitation of liability within which private industry could obtain insurance at reasonable cost and/or governmental indemnity up to the limits of liability, the need for supplementary indemnification would be relatively secondary. From a strictly legal point of view this answer was correct. It is true of course as pointed out in the Harvard report that an extremely low limit of liability might be disregarded as against public policy in a suit brought in an American court. However, this does not appear to me to be a very likely result. On the other hand, recovery of any U.S. citizens injured in any such foreign nuclear incident would be subject to the same limitations as that of foreign nationals. Furthermore, in the event that an American supplier is held liable for an incident in a foreign country and insufficient funds are available to compensate victims of the accident, the inevitable public reaction abroad might be extremely harmful both to the interests of American industry as well as to the prestige of our Government. Therefore, I do not believe that the amount of protection which will be afforded to the public under international convention or supplementary national legislation can be entirely disregarded either by American industry or by the U.S. Government.

Finally, with respect to Dr. Davenport's suggestion that the Atomic Energy Act be amended to include within its indemnity amendment provisions transportation between points in the United States, Congressman Hosmer indicated that transportation to Alaska and Hawaii might well be treated as a separate problem from water transportation between other points in the United States requiring entry into international waters. Congressman Hosmer indicated, I believe, that the latter type of transportation might well involve the interest of other countries. I assume that implicit in this comment was the suggestion that such problems might best be handled by international convention. While we would not dispute the desirability of resolving all international maritime liability problems by comprehensive convention, the problem of transportation of spent fuel elements between points in the United States poses a near future problem on which no international solution is in sight. If the necessary first steps of entrance into this business by American industry are to be encouraged, resolution of this problem in the immediate future is essential. Furthermore, transportation by U.S. companies of spent elements from an American-owned reactor to a U.S. reprocessing center may well involve policy considerations different from those which might otherwise be inherent in international transportation. Under the circumstances we strongly feel that inclusion of liability which might arise from such transportation is called for under the indemnity provisions of the Price-Anderson Act. Should such liability subsequently be covered by international convention, consideration could then be given to permitting such convention to supervene any applicable provisions of our own Indemnity Act.

Please accept once again my own and Dr. Davenport's sincere appreciation for the opportunity which we were given to appear before the Committee on these problems.

Yours very truly,

HOWARD M. COHEN.

Representative DURHAM. That completes the hearing. We have received several statements for the record and without objection we will insert them at this point.

(The statements referred to follow:)

STATEMENT OF ANDREW J. BIEMILLER, DIRECTOR, DEPARTMENT OF LEGISLATION, AMERICAN FEDERATION OF LABOR AND CONGRESS OF INDUSTRIAL ORGANIZATIONS

Mr. Chairman, my name is Andrew J. Biemiller. I am director of the legislative department of the American Federation of Labor and Congress of Industrial Organizations.

On behalf of the AFL–CIO, I wish to present to your committee a brief statement on the matter of public liability and indemnity now under your consideration.

We are in basic accord with the underlying principle that to the extent that nuclear damage cannot be prevented in the construction and operation of atomic facilities, there must be public liability on the part of the enterprises which cause the damage.

We feel strongly that this basic premise fits in with an even more fundamental one—namely, that from the public interest standpoint the use of atomic energy be so regulated under adequate licensing and controls that the threat of malfunctions or accidents be reduced to the lowest humanly possible minimum.

The AFL–CIO is of the strong opinion that to carry out proper safety liability and indemnity programs that the Atomic Energy Commission must show in the future greater sensitivity to the recommendations and warnings of its Advisory Committee on Reactor Safeguards than it has done in the past, particularly with respect to issuances of licenses to proceed with construction of nuclear power facilities prior to determination of proper location of the plant and in adequate safety devices by the private licenses.

But, there is still a third facet of this matter which we desire to bring before your committee as important unfinished business wih respect to the safety aspects of our program to develop peaceful uses of atomic energy.

In our testimony before your committee on section 202 of the act, we pointed out that "Industry is already protected by the Federal indemnity program against financial loss from public claims arising out of atomic accidents. It is only simple justice that workers whose lives might be lost, or health and earning power affected, should be assured equivalent protection by the Congress. Since the States have failed to come to grips with this protection and take the kind of action needed, the Congress should not delay longer."

On March 18, 1959, we testified on employee radiation hazards and workmen's compensation before this committee's Subcommittee on Research and Development. We pointed out the rapid increase in peaceful uses of atomic energy is bringing about an equivalent increase in the industrial and commercial uses of radioactive materials. Consequently, and not withstanding the most rigid safety standards painstakingly enforced, exposure incidents will increase and the number of employees who run the chance of suffering from radiation exposure will mount rapidly. The welfare of workers in daily pursuits who are exposed in their jobs or are employed in plants using nuclear materials is of vital concern to the AFL–CIO and should be of equally vital concern to this committee and to the Nation.

We have made our position unequivocably clear, but there is need now of a Federal workmen's compensation program for workers subjected to radiation hazards and that the States have not and will not come to grips with this program and take the kind of action needed.

In our March 18 testimony we outlined our legislative approach to a Federal Workmen's Compensation Act and urged the committee and the Congress "to establish a national program to solve adequately a national problem." Adequate workmen's compensation in the field of atomic energy is as equally important to the lives and health of workers as public liability and indemnity problems on a Federal level for industry. We, therefore, call to your attention that workmen's compensation is unfinished business before this committee and the Congress, and once again urge that the Joint Committee on Atomic Energy hold hearings in this session of the 86th Congress on legislation to establish a Federal workmen's compensation program without undue delay. We will be most happy to cooperate in every way possible with the committee in this matter, including the drafting of a proposed bill, bespeaking the interests of the AFL–CIO and in any other way that may be found necessary in order to move toward this goal.

I wish to thank the committee for the opportunity that it has given us to discuss this matter in conjunction with the public liability and indemnity legislation before it.

STATEMENT OF H. SUMNER STANLEY, ASSISTANT GENERAL MANAGER, NUCLEAR ENERGY PROPERTY INSURANCE ASSOCIATION

My name is H. Sumner Stanley, assistant general manager of the Nuclear Energy Property Insurance Association.

I have read that part of Mr. Price's statement made yesterday which refers to the proposed onsite property amendment to the definition of Public Liability in the Price-Anderson Act.

As I understand it, the purpose of this amendment is to make it clear that damage to onsite property is not covered by Government indemnity.

We property underwriters in the Nuclear Energy Property Insurance Association had always understood that Government indemnity did not cover onsite property. The members of the mutual nuclear insurance pool had the same understanding. The legislative history of the act supports this understanding.

If this amendment is necessary or advisable to bring the wording of the definition in line with the congressional intent, we urge that it be passed.

There is no need for Government indemnity for onsite property. The private insurance pools have sufficient capacity to take care of industry needs and both pools have recently voted to incorporate in their policies a waiver of subrogation of rights against any party furnishing services, materials, parts or equipment in connection with the planning, construction, maintenance, operation or use of the property covered, arising out of any loss resulting from radioactive material.

WESTINGHOUSE ELECTRIC CORP.,
Pittsburgh, Pa., April 29, 1959.

Mr. JAMES T. RAMEY,
Executive Director, Congress of the United States,
Joint Committee on Atomic Energy, Washington, D.C.

DEAR MR. RAMEY: This is in response to your letter of April 18 concerning the April 29 to 30 hearings on nuclear indemnity and liability problems.

I feel that the basic problems we have been concerned about, other than those arising out of Department of Defense activities and the sales of atomic products abroad, have been solved.

In connection with licensee operations under the Price-Anderson Act, industry's ideas are reflected in the comments on the proposed amendments to part 140 of the Commission's Report published in the Joint Committee print issued in anticipation of the hearings. I think it would be helpful if the proposed amendment to subsection 170(c) of the act is passed. This would fill in a major gap between available NELIA-MAELU insurance and the proposed indemnity agreement. Other licensee problems have been summarized in the Joint Committee print, and it is gratifying to know that their resolution is being worked on.

As far as the proposed amendment to subsection 11(u) of the act is concerned, i.e., the elimination from the licensee indemnity provisions of protection against liability for onsite property damages, I think that most prime contractors will probably be able to protect themselves by contract, obtaining a waiver from the reactor operator. Generally, too, subcontractors and suppliers could be protected by provisions in the prime contract relieving them from responsibility for onsite property damage. However, there can be no advance assurance to lower tier suppliers that such a provision will, in fact, be negotiated in the prime contract and, thus, they may be exposed.

As far as contractor operations under Price-Anderson are concerned, there does not yet appear to be a firm policy or detailed criteria with respect to kinds of activities involving the risk of occurrence of a substantial nuclear incident with respect to which indemnities might be granted or with respect to contracts and projects financed in whole or in part by the Commission. The publication of such a policy by the Commission would be most helpful.

The problem of projects involving other Government agencies as well as the Commission leads into the further problem of Department of Defense indemni-
, legislation concerning which is now awaiting congressional action (i.e.,

H.R. 4103 which is before the Committee on Armed Services). We feel that that legislation—applicable to both nuclear and other unusually hazardous risks—is necessary because no other solution has been found. We hope that the Congress will act promptly on H.R. 4103. It would give the Department of Defense clear authority to indemnify not only in connection with the naval nuclear reactor program, but also in connection with activities involving other branches of the Department of Defense where potential liabilities, no matter how remote the risks, could far exceed available insurance coverage. Here, time is working against us as more and more units go into service.

We understand that there has been a great deal of activity in OEEC and, to a lesser degree, in EURATOM and that drafts on third party liability conventions are under way. Although there is the problem in keeping current on their activities, the efforts of both these groups seems to be heading in the right direction. We are counting on the ultimate result of their work paralleling both for the public and members of the atomic industry, the effect of the Price-Anderson Act, and that it will afford a satisfactory solution for Western Europe where atomic power developments are going forward rapidly. We commend the work already done by and urge that our Government continue to use its good offices to encourage our OEEC and EURATOM friends to provide a satisfactory system. The basic problem is exactly the same as it was a year ago and although a great deal of work has been done during the intervening months, here, too, time is running out as schedules for criticality come closer.

I hope that these comments will be helpful to the committee in its continued attention to indemnity and liability problems.

Sincerely,

CHARLES H. WEAVER, *Vice President.*

(Whereupon, at 4:10 p.m., Thursday, April 30, 1959, the committee adjourned subject to call of the Chair.)

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